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DETROIT

A National Newspaper for Every Branch of the Industry

Automotive Daily News

PASSENGER TRUCK PARTS, SHOP EQUIPMENT TIRES ACCESSORIES

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CONSUMPTION OF CRUDE RUBBER IN U. S. AT NEW HIGH

Total of 441,398 Tons Exceeds 1927 by 19 Per Cent.

NEW YORK, Jan. 15.—Consumption of crude rubber in the United States last year reached a new high level amounting to 441,398 tons, or 19 per cent. in excess of the 370,879 tons consumed in 1927.

Rubber consumption in December amounted to 31,232 tons, against 25,381 tons in December, 1927, and 37,461 tons in November, 1928.

Imports of crude rubber into the United States in December, 1928, set a new monthly record for all time, totaling 46,840 tons, against 34,720 tons in November last and 29,062 tons in December, 1927. This tremendous gain is accounted for by the lifting of the Stevenson restriction act in British Malaya and Ceylon on November 1 last, and the consequent dumping of thousands of tons of stored rubber on the market.

Imports for the entire year 1928 totaled 446,421 tons, a new high record, comparing with 432,316 tons in 1927 and 411,962 tons in 1926, an increase of 3.2 per cent. and 8.3 per cent., respectively.

Stocks on hand December 31, 1928, totaled 66,166 tons, an increase of 4,210 tons over the amount on hand November 30, but a decrease of 33,968 tons, or 33.9 per cent. from stocks on hand December 31, 1927. Stocks afloat at the end of December last amounted to 68,764, approximately the same as the previous

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GRAHAM-PAIGE BODY PLANT IN PRODUCTION

Evansville, Ind., Jan. 15.—The new $1,500,000 plant of the Graham-Paige Body Corporation, East Columbia Street, has started production with a force of about 200. The staff of the Motor Bodies, Inc., plant, Morgan Avenue and Read Street, transferred this week to the new plant, according to R. E. Stone, secretary.

This force is the nucleus of an employee organization at the new plant which by February 1 is expected to number 1,000.

Philadelphians View Latest in Cars

INTEREST IN THE AUTOMOBILE SHOW at Phila delphia has been increasing steadily this week with crowds thronging the Commercial Museum where the exhibition is being held. Above is shown a general view of the exhibition with the Stearns-Knight models in the foreground.

NASH MOTORS EARNED $3.21 A SHARE IN NOV. 30 QUARTER

New York, Jan. 15.—Nash Motors earned $3.21 a share in the quarter ended November 30, against $2.50 a share in the corresponding 1927 quarter; twelve months $7.62 a share, against $8.30 a share; declared quarterly dividend of $1.50, placing stock on $6 annual basis, against 50 cents extra and $1 regular quarterly previously.

C. O. MINIGER ELECTED TO TOLEDO BANK BOARD

Toledo, Jan. 15.—C. O. Miniger, president of the Electric Auto-Lite and other automotive enterprises, was elected to the board of directors of the Ohio Savings Bank and Trust Company, following purchase of an important block of stock in the company. Miniger's entry into the Ohio bank was interpreted as a new line-up of banking power in Toledo.

J. R. NUTT BOARD CHAIRMAN OF UNION TRUST, CLEVELAND

Cleveland, Jan. 15.—Joseph R. Nutt, a director of the White Motor Company and president of the Union Trust Company, Cleveland, has assumed the additional duties of chairman of the board, succeeding John Sherwin, resigned. Nutt has been president and Sherwin chairman of the $370,000,000 institution since it was formed by the merger of six banks in 1921.

GRAHAM-PAIGE EXPORT ORDERS FOR JAN. 2,046

Detroit, Jan. 15.—The Graham-Paige Motors Corporation has on hand orders for 2,046 cars for export shipment during January. Export sales during 1928 totaled 6,222 cars, or 2½ times the preceding year's sales.

John D. Biggers, president of the Graham-Paige International Corporation, said: "One year ago we had 52 overseas distributors, with few dealers, and our export sales, except Canada and Cuba in 1927 were only 2,523 cars. During the last 12 months we have exactly doubled the number of distributors and have greatly increased the dealer organization, so that we now have more than 500."

He believes the export business of the American Motor Car Company, which adequately develops the foreign field, may in time equal its domestic business.

JANESVILLE CHEVROLET PLANT IN PRODUCTION

Janesville, Wis., Jan. 15.—Production at the Janesville plants of the Chevrolet Motor Company and Fisher Body Company, which opened a month ago after being closed for a short time for inventory, has been increased greatly since January 1, and is now running out 375 of the new Chevrolet sixes daily.

Practically all of the former employees of the factory have been recalled, according to Ellery L. Wright, general manager. Production will be increased frequently until the plants reach their capacity, it is stated.

GAS PRICE WAR IN SEATTLE, LOS ANGELES AND PORTLAND

Los Angeles, Jan. 15.—Gasoline gallonage competition has resulted in reopening the price war, with three seats of disturbance in Los Angeles, Portland and Seattle, where price cutting prevails. Major marketing companies with few company-owned stations are maintaining posted market price of 20½ cents a gallon, but independents are posting "six gallons for a dollar" signs, overstepping rules of ethics laid down last fall.

FEDERAL TRUCK PLANNING ADDITION TO ITS FACTORY

Detroit, Jan. 15.—Federal Motor Truck has just ended one of its most successful and prosperous years. Its export business, as well as its domestic business, has reached new heights, officials report. Because of increased demand for its products the company plans to increase the size of the Detroit factory. Contracts have been let and ground broken for a new addition 400 feet long, which will add 57,600 square feet of floor space to the factory.

LOUISIANA GAS TAX TO AID HIGHWAY BUILDING

New Orleans, La., Jan. 15.—Flags flew, cameras clicked, gasoline gurgled. President-elect A. D. Danziger of the New Orleans Association of Commerce bought the first gallon of gasoline under the new tax which went into effect January 4 and which will bring into the highway fund millions of dollars and insure for the state of Louisiana the paving of its main highways.

AUBURN UNFILLED ORDERS 5,208 CARS ON JANUARY 1

New York, Jan. 15.—The Auburn Automobile Company had on hand unfilled orders for 5,208 cars, as of January 1, 1929, compared with 204 on December 1 and 2,493 on January 1, 1928.

S. A. E. DISCUSSES OVERSEAS MARKET AT FIRST SESSION

1,200 Attend; Business Reports; Research Featured

DETROIT, Jan. 15.—Conditions in the overseas market affecting the design, manufacture and sale of American cars abroad, based on the economic requirements of the various overseas countries, were ably presented at the first evening meeting of the Society of Automotive Engineers at the Book-Cadillac Hotel here today.

The paper prepared by J. D. Mooney, president of General Motors Export Company, and Clarence M. Foss, engineer of General Motors staff, was presented by Mr. Foss.

The attendance the first day was in excess of 1,200, and it is expected that more than 1,500 members will be in attendance before the close of the annual session on Friday.

The society registration was smartly handled and the matter of hotel accommodations for the visitors was well cared for.

The morning was given up to preliminary convention details and the first formal program was given this afternoon at 1.30. "Research" was the general theme of the meeting. A paper was presented by Dr. O. C. Bridgeman of the Bureau of Standards. Donald B. Brooks, also of the bureau, was responsible for two papers, and H. H. Allen of the committee of headlight research, presented the results of his committee's deliberations to date.

President W. G. Wall presided at

(Continued on page 5)

TWO DURANT DIVISIONS TO STAY IN ELIZABETH

New York, Jan. 15.—When Durant Motors, Inc., operations are removed to Lansing, Mich., the plant at Elizabeth, N. J., will continue as the distributing center for the East, it was learned there today. The new chromium plating division and the sheet metal division, now in operation at Elizabeth, are expected to remain in that city, it was said.

February to Set Peak in Industry's Steel Demand

Youngstown, O., Jan. 15.—February is expected to mark the peak of demand for automobile steels, running chiefly to sheets, strips, light plates, bars and other flat rolled steels.

In the meantime automotive demands are responsible for high current activity of rolling mills, with consequent active production by steel plants and blast furnaces. Continued bright outlook in sheets is the principal factor in plans of Newton Steel to build a new rolling mill property at Monroe, Mich. Sheet bars are moving firmly at $34 for the first quarter, and there are no signs of deviation from this market.

N. J. GAS TAX $12,000,000 IN PAST YEAR AND HALF

Trenton, N. J., Jan. 15.—New Jersey has received nearly $12,000,000 in revenue since the gasoline tax was established, a year and a half ago, according to William L. Dill, motor vehicle commissioner. Records for the first seventeen months of operation, from July 1, 1927, to November 30, 1928, show a gross total of $11,895,618. Already this year the gas license fees total $12,312. Though this is only two-thirds that of 1928, it means many more gas stations than last year, as many stations are closed during the winter.

Foreign Plants of Ford Co. Step Up Rate of Production

DETROIT, Jan. 15.—Foreign plants and branches of Ford Motor Company materially increased the rate of production during the final quarter of 1928. Within the sixty days from the first part of October to early December output of the foreign plants nearly doubled, showing an increase of more than 200 cars a day.

Reports from Manchester, England, indicate a heavy production program has been laid out for the plant of the Ford Motor Company of England, Ltd. The record made by the plant of 3,922 Model T cars during a single month in 1921 is expected to be surpassed early this year, and a steady average of around 170 cars a day maintained. Early in October, Manchester was averaging about 24 cars a day, and by December 1 had increased that figure to 100.

Copenhagen jumped from 47 a day to 60; Antwerp from 30 to 51; Barcelona from 25 to 41; Berlin from 25 to 43; Buenos Aires from 43 to 54; Sao Paulo from 18 to 26, and Jokohama from 18 to 38. Mexico City, which started production only four months ago, has increased from 8 to 24 a day.

Two Ford foreign plants will become full-fledged assembly units this month and will completely assemble the Model A car. One is at Rio de Janeiro, which has not yet been used for car assembly. The other is at Santiago, Chile, which

(Continued on Page 2)

Foreign Plants of Ford Co. Step Up Rate of Production

(Continued from Page 1)

heretofore has been considered only as a semi-assembly plant.

When in production the Rio plant is expected to build approximately 500 cars a month and the Santiago plant will make between 400 and 500. In the past, the Santiago plant has not assembled closed bodies nor has it done enameling. The Rio de Janeiro plant was ready to start production just as the change-over was made to the Model A, and as a result did not actually begin to build cars.

Completion in November of the Yokohama assembly plant of the Ford Motor Company of Japan, Ltd., added one more important manufacturing unit to the large number of Ford plants in various parts of the world. Soon after its completion, production of the Model A car was started. The building is the second largest in Japan in amount of floor space under one roof, containing 158,000 square feet.

Its location is strategic from a transportation standpoint, as two main highways are now under construction to its doors and it is within a stone's throw of the Tokio-Yokohama highway. The west side of the building opens into a canal leading to Tokio Bay, on which the property fronts. Two sidings afford ample railway connections.

LAKE ERIE METAL CO. STARTS NEW BUILDING

Bedford, O., Jan. 15.—The Lake Erie Metal Products Company, manufacturer of Lempco axle and drive shafts, worms and worm gears, gun alloy brake drums and pressed steel brake drums, broke ground on January 7 for a two-story addition to its factory, which will increase floor space of the present building by 33 per cent.

The new building, the third addition to the factory within two years, was made necessary by greatly increased demand for Lempco products for the replacement field and a number of original equipment contracts with truck chassis builders.

Cost of the new structure and additional equipment will be approximately $100,000. The second floor will include a reception room, general offices and an elaborate suite of private offices for executives of the company.

MORTON NEW PRESIDENT OF AMERICAN HAMMERED

Baltimore, Jan. 15.—The American Hammered Piston Ring Company announces the resignation of W. C. Stettinius as president and general manager. Mr. Stettinius will remain on the board of directors and will be vice-chairman of the board. Allen W. Morton, who has been connected with the company in various capacities for the past ten years, and vice-president for the last three years, has been elected president and general manager.

6,398 PERSONS VISITED REO FACTORY LAST YEAR

Lansing, Mich., Jan. 15.—During 1928 an average of twenty persons a day visited the Reo Motor Car plant at Lansing, Mich., a total of 6,398 from 46 states of the Union and many foreign countries having registered with Sol Austin, Reo "courtesy man." The foreign visitors came from England, Canada, Australia, Germany, South Africa, Persia, Scotland, Austria, the various republics and provinces of South America, Mexico, Cuba and the West Indies.

C. W. COAPMAN NAMED TO CRIME COMMISSION

Rochester, Jan. 15.—C. Walter Coapman, assistant treasurer of the North East Electric Company, has been named by Newton D. Baker, former secretary of war under President Wilson, as a member of a special committee of the National Crime Commission, which will study and report on the problem of payroll robberies throughout the country.

ROY PATON ON ENGINEERING STAFF OF PERFECT CIRCLE

Hagerstown, Ind., Jan. 15.—Announcement has been made by the Perfect Circle Company of this city that Roy Paton has been appointed to the engineering staff as experimental engineer. Mr. Paton, a graduate of the University of Michigan, will be in charge of the experimental piston ring testing laboratory.

GORMAN NAMED HEAD OF TRANSUE-WILLIAMS

Alliance, O., Jan. 15.—J. H. Gorman, formerly of Baltimore, Md., has been named president of the Transue-Williams Steel Forgings Corporation here. He succeeds F. W. Trabold, who resigned on account of ill health. N. C. Senour was named secretary-treasurer, succeeding Herbert Woolf of Alliance, who retires.

WOMAN LOSES SUIT AGAINST WIRE WHEEL

Buffalo, Jan. 15.—The Court of Appeals has dismissed the action of Mrs. Lottie D. Large of Buffalo against the Wire Wheel Corporation of America, thereby setting aside an award of $219,389 made by the lower courts to the Buffalo woman. Mrs. Large bought the assets of the bankrupt Johnson Rim Company and brought suit against the Wire Wheel Company for alleged violation of an agreement which, she contended, bound it to take the output of rims made by the Johnson company. The Wire Wheel Company appealed from the lower court's decision, the Appellate Division setting aside the award. Mrs. Large appealed from this ruling, but was again defeated.

DELCO-LIGHT SHIPMENTS INCREASED IN 1928

Dayton, O., Jan. 15.—Shipments of individual electric plants during the year ended December 31, 1928, by the Delco-Light Company, subsidiary of General Motors, totaled 25,318 units, it is announced by H. W. Arnold, general manager. Battery shipments totaled 33,000 and "D-L" electric water systems totaled 10,002 during the year.

SWANSON JOINS MOGGE AS PRODUCTION MANAGER

Chicago, Jan. 15.—Albert Swanson has resigned as auditor of the Motor and Equipment Association, effective January 2, and has joined Arthur R. Mogge, Inc., Chicago advertising agency specializing in automotive accounts. He has been elected secretary and will also serve as production manager of the Mogge agency. Mr. Swanson was connected with the Automotive Equipment Association from its inception, in 1915, and served in various executive capacities with the organization, which recently through a merger became the M. & E. A.

INSURANCE MEN TO OPEN CAMPAIGN IN BAY STATE

Boston, Mass., Jan. 15.—At least a thousand fire and casualty insurance men from all over the state will attend a meeting and banquet at the Hotel Statler January 30, called to launch a campaign against proposed state operation of a compulsory auto insurance fund. Senator Pat Harrison will be the principal speaker at the dinner on "Less Government in Business and More Business in Government." He is expected to touch upon the Massachusetts situation. Plans will be discussed for active opposition to the state plan, and the speech will be broadcast from a local radio station.

REINHARDT NAMED FORD MANAGER AT HOUSTON, TEX.

Houston, Tex., Jan. 15 (U. T. P. S.).—Frank S. Reinhardt has been appointed manager of the Houston Ford assembly plant, according to announcements made here. Mr. Reinhardt came to the Houston plant from Memphis, Tenn., where he was assistant sales manager.

BUDA NAMES HINKLEY AS EXECUTIVE ENGINEER

Harvey, Ill., Jan. 15.—Effective January 1, the Buda Company announces the appointment of C. C. Hinkley of Detroit as executive engineer, supplanting J. P. Mahoney, resigned.

EXPORTS GAINED 50% IN NOVEMBER

Value of All Products $45,880,862; 29,684 Cars

New York, Jan. 15.—**November shipments of American automotive products to foreign countries were nearly half again as large as those of the corresponding month in 1927, according to the Automotive Division of the United States Department of Commerce. The total value is fixed at $45,880,862.**

The statement follows in part:—

Passenger car shipments for this month total 29,684 valued at $21,733,510, and represent gains of 39 per cent. in number and 33 per cent. in value over November, 1927. Truck shipments total 17,209 valued at $9,616,047, which exceeded the corresponding month of last year by 72 per cent. in number and 50 per cent. in value.

Exports of automotive products for the January to November period of the current year reached a valuation of $485,958,254, which exceeded the first 11 months of 1927 by $108,499,742, or 28.7 per cent. The average export value for the first 11 months of 1928 was $44,187,024 as compared with $34,314,410 for the January to November period of 1927.

As in October of this year the leading markets for passenger cars remained Australia, Argentina, British Africa and Brazil, with substantial increase in shipments going to the United Kingdom and Netherlands Indies. Exports to Canada, Germany, Mexico and British India showed a slight decline from the October figures. The average unit value of passenger cars during the month was $732.

The four countries which occupied the leading position as markets of importance for American passenger cars during November were also the outstanding truck markets during this period. Truck shipments during the month in number of units exceeded any previous month in the history of the industry. The average unit value of trucks exported during the month was $559.

Exports of parts and accessories showed a decided falling off from the October figure.

FORD SPEEDING UP AT CHARLOTTE, N. C., PLANT

Charlotte, N. C., Jan. 15.—Production of the Charlotte branch of the Ford Motor Company will be substantially increased in about two weeks, it was learned today. The present output of the plant is 150 cars daily. The speeding up of operations here will be related directly to the steady expansion of all Ford activities.

Operations at the Charlotte plant are handicapped by the influenza epidemic, now prevalent in the state. An absence of an average of seventy-five men per day is reported by officials of the local plant.

LAWRENCE CO. BUILDING NEARING COMPLETION

Newark, N. J., Jan. 15.—Work is rapidly nearing completion on the new sales and service building of the Lawrence Motor Car Company, local Auburn distributors, at 390 Halsey St. When completed this new building, adjoining the present showrooms, will be one of the finest in the state.

INDIANA OPTOMETRISTS ASK COMPULSORY EYE TESTS

Indianapolis, Ind., Jan. 15.—A bill providing for compulsory vision tests for all automobile drivers in this state will be presented to the 1929 Legislature, which convened today.

The move will be backed by the Indiana Association of Optometrists, which adopted the plan at its annual convention here this week.

PEORIA DEALERS TO HOLD MOTOR SHOW FEBRUARY 5-9

Peoria, Ill., Jan. 15.—The Peoria Automotive Dealers' Association this week announced February 5-9, inclusive, as dates for its annual show in the state armory. Twenty-four exhibitors have made reservations, and at least thirty-two models will be shown. There will be fourteen booths for accessory, service and shop equipment firms.

SPARKS *from* DETROIT

"The Black Flyer"

* * *

Law Enforcement

* * *

Standard Road Signs

* * *

Baseball Interest

Walter Boynton—Detroit Editor

FRED J. BLACK, advertising manager for the Ford Motor Company, is one of Detroit's greatest flying enthusiasts. In testimony of his lively interest, he has printed "The Black Flyer," which bears the legend "Published just once at Dearborn, Mich." It is a miniature paper, but the circulation statement shows that the combined circulation of the Saturday Evening Post and the Black Flyer is over 2,831,462.

Brother Black is editor, Mrs. Black is MANAGER and Joyce Black, the daughter, is reporter at large. The editorial duties include various departments—social, political, sport, household and art. A certain tendency to verge on the duties of the advertising department is also noted. For example: "Your next suit should have air pockets. See Bill Stout's Style Shop," and "Are You a Social Climber? Fred Black will take you up."

The little sheet is full of breezy, airy trifles, good-humored and philosophical. Perhaps it may be continued, in response to pressure.

* * *

Further emphasis on the advantages accruing from the steady drive for traffic law enforcement in Detroit is shown by the compiled figures for 1928. These show that while in the city limits, under energetic police supervision, the fatalities were cut down they increased in the metropolitan district.

* * *

Automotive organizations naturally helped to swell the total of taxes collected at the end of the year in Detroit. Fisher Body's contribution was $320,526 and that of the Chrysler Corporation was $249,391.

* * *

IN a little over three years, twenty-eight states have adopted standard road signs for use on the United States highway system, and Michigan is among them. There is expected to be considerable spread of this work in 1929. Some of the states have already marked from 75 per cent. to 99 per cent. of their roads with danger and caution signs and standard route markers. United States Route 1, which extends from Maine to Florida, is marked for practically its entire length.

* * *

Perspicacity of the police force is certainly growing. When the arms of the law noted that a driver in a nearby town was making rather difficult progress on three wheels of his car—the fourth being entirely missing—they surmised that he might be intoxicated. Investigation proved the correctness of this theory and the gentleman was arrested. Driving on anything less than all four wheels is usually a pretty good sign that there is irresponsibility at the wheel. And driving on three wheels is not only a strain on the chassis, but tough on the pavement.

* * *

Interest of automotive executives here in Detroit in the classic game of baseball is historic. The late John Kelsey, himself a ball player of sorts and a pioneer athlete, was part owner of the Detroit club. Now Walter O. Briggs has bought the Kelsey stock, adding to the shares that he already owned by purchase from the old Yawkey estate. He is now equal owner with Frank Navin, president of the club and vice-president of the American League.

* * *

Some Detroiters will have their names on the antarctic maps of the future. Capt. Sir George Hubert Wilkins, now exploring by airplane near the southern pole, has named Evans Inlet after Edward S. Evans; Capes Fritsche and McCarroll, after Carl B. Fritsche and H. G. McCarroll, and Cape Mayo, after William B. Mayo, chief engineer of the Ford Motor Company. These four men were active in financing and otherwise aiding the first Wilkins' expedition by plane to the north pole in 1926.

* * *

Progress is actually being made in the matter of Detroit's city airport. Plans are afoot to acquire fifty additional acres for the site, part of them now used as a cemetery. A state law properly forbids the acquisition of cemetery property by condemnation proceedings. There is, by the way, the same protection for the property of public utilities.

* * *

Lansing bankers predict that the city will have a population of 100,000 in 1929, the result of completed expansion by Reo, Oldsmobile, Motor Wheel and Durant plants and by additions to the working forces of these and of smaller automotive plants in the state capital.

* * *

One of Detroit's early and almost forgotten automobiles was the Thomas. Now word has been received that one of this line, built there in 1909, is still at work down in New York state, where it has been useful to one owner for the last twelve years. In that time it has added 200,000 miles to the total accumulated in its seven years of earlier service. I wonder why they stopped making the Thomas.

NEW BRUNSWICK GAS TAX OF 5 CENTS NOW IN EFFECT

St. John, N. B., Jan. 15.—On January 1 the increase in the provincial gasoline tax from 3 to 5 cents a gallon went into effect, and the rate is now the same in all the Eastern provinces of Canada. Tourists during the coming season will bear the brunt of the increase, resident owners of cars in New Brunswick enjoying a reduction of 15 per cent. in license fees for cars. A new law has also gone into effect requiring every driver of an automobile to have a license.

CROWDS ATTEND ATLANTA SHOW

Elaborate Exposition Being Held in Huge Auditorium

ATLANTA, Jan. 15.—The most elaborate automobile show ever held in the Southeastern states opened at the Municipal Auditorium here yesterday afternoon, with an immense crowd attending the first session.

The show will run until Saturday night, with special entertainment programs every afternoon and evening.

The automobiles displayed this year show more style and color than any previously brought here, and dealers are enthusiastic over the prospects of record sales during the show and afterward. Many of the new models were rushed through on a special express train from the New York Automobile Show that closed Saturday night.

The color scheme of the New York show, blue and gold, also was carried out in the elaborate decorations. There were so many exhibits this year that it became necessary to use the balcony of the huge auditorium for the first time, accessory and shop equipment exhibits being crowded out of the chief display rooms.

The main arena is being used for displays of Buicks, Franklins, Dodges, Lincolns, Graham-Paiges, Fords and Chevrolets.

The balcony exhibits DeSoto, Willy-Knight, Whippet, Stutz, Blackhawk, Hupmobile, Marmon, Oakland and Pontiac models.

Taft Hall, adjacent to the main auditorium, shows new models of Durant, Oldsmobile and Studebaker.

The auditorium stage contains numerous Nash models and the lobby shows the latest Reo products.

Entertainment features are being provided by local merchants sponsoring the annual style show. Advance ticket sales indicate the largest attendance in history.

KENTUCKY TAX LAW ON TRUCKS TO BE TESTED

Frankfort, Ky., Jan. 15.—The right of the Kentucky State Tax Commission to arbitrarily fix the tonnage of automobile trucks for the purpose of licensing them is questioned by the Safety Transfer and Storage Company and the Henry Bickel Company of Louisville and the Ashland Transfer Company of Ashland in suits filed here.

The State Tax Commission, in order to acquire more revenue, has arbitrarily raised the tonnage on all classes of trucks. This suit is to compel the State Tax Commission to accept the manufacturers' rating of the carrying capacity of trucks for the purpose of determining the license fee that shall be paid by the owner of the truck.

AUBURN FACTORY BRANCH OPENED AT FT. WORTH

Fort Worth, Tex., Jan. 15 (U. T. P. S.).—A factory branch of the Auburn Automobile Company has been opened here with T. K. Cleveland in charge. Mr. Cleveland formerly was with the Auburn branch at Dallas and prior to that was with the Willys-Knight branch factory at Dallas. The new branch will take care of the western Texas business of the company.

C. S. HAMILTON MOTOR TO HANDLE CHRYSLER LINE

Dallas, Tex., Jan. 15 (U. T. P. S.).—The C. S. Hamilton Motor Company, with C. S. Hamilton at the head, has been organized and has taken over the Chrysler franchise for Dallas and immediate territory. The company announces it will erect a $125,000 home on North Pearl Street in the near future. The Hamilton organization will distribute the Chryslers in some thirty counties of north Texas.

PRICE TO DISTRIBUTE DE SOTO IN SOUTH PLAINS

Lubbock, Tex., Jan. 15.—Distribution of De Soto automobiles in the South Plains district of Texas has been taken over by the Caprock Motor Company, C. E. Price, manager, here.

W. H. GLEASON COMPANY HAS SUCCESSFUL YEAR

Portland, Me., Jan. 15.—Although one of the youngest automobile concerns on Forest Avenue, Portland's automobile row, the William H. Gleason Company, distributorship in this section for Chrysler and Plymouth cars, in twelve months has become one of the strongest sales and service establishments in northern New England.

During the past year a new building was erected at 501 Forest Ave., where the company is now located.

It is a complete and modern motor sales and service unit in every respect. William H. Gleason, head of the company, came here from Boston about a year ago to take over distribution of the Chrysler car in this territory.

SAVIDGE IN HONOLULU

Seattle, Jan. 15.—S. L. Savidge, distributor for Hupmobile, has gone on a trip to Honolulu, where he will visit for the next six weeks.

Varied Exhibits Offered At Philadelphia Show

By K. H. LANSING

PHILADELPHIA, Jan. 15.—Clear, crisp weather favored the opening of the twenty-eighth annual automobile show under the sponsorship of the Philadelphia Automobile Trade Association.

It was a colorful and apparently motorwise throng that eagerly pushed through the doorways of the Commercial Museum, 34th Street, below Spruce, to view the newest creations of motordom, embracing passenger cars of various types, light trucks and a wide range of accessories.

An innovation is a display of Chris-Craft motor boats as another important form of transportation. There are also exhibits by the Pennsylvania State Highway Department and three motor clubs. The attendance was unusually heavy for a first night and exhibitors are greatly encouraged over the outlook for sales and lengthy additions to prospect lists.

In a setting of moderne-istic trend, yet not glaringly of the new school, are shown 250 types of cars representing the products of forty different manufacturers. The color scheme of the decorations is dominated by white and gold, warmed by the introduction of vermilion, sparingly used, and was suggested by careful study of the tones found in prints by three Japanese artists of a century ago. The design of the architect, Philip S. Tyre, shows the innovation of hundreds of clusters of lights, in fairy-like fixtures, and there is a profusion of sateen drapery and bunting. Three entirely new makes of cars are having their premiere.

Fifty commercial car units, representing thirteen different makes, form an interesting exhibit which this year takes the place of shop equipment. The display of accessories includes almost every conceivable convenience and necessity for the modern motor car.

The show committee consists of Walter G. Herbert, chairman; Guy A. Wiley, vice-chairman; Paul I. Harper, secretary; J. E. Gomery, treasurer; J. G. Roberts, Robert B. Parker, John H. Fassitt, S. S. Thornton and George Flint. W. H. Metcalf is executive secretary and show manager. The show will close Saturday night.

MOTOR TRANSPORT FIRM CHARTERED AT COLUMBUS

Toledo, O., Jan. 15.—Toledo and outside capital is behind the Motor Transport and Truck Company, chartered recently at Columbus to conduct a motor freight business. Incorporators named are W. W. Campbell, Harry H. Crist and Otto L. Hankinson. They announced that details of the company are not yet ready for publication. The company will issue 100 shares of no par stock.

You Can Not Dispute This Fact

—you are not covering the New York market unless your schedule includes the newspaper having the second largest evening circulation

New York's great earning and spending middle-class has grown in number and in buying power in the last ten years.

This increase is directly represented by the present circulation of the second largest evening newspaper.

Cold logic proves this because the combined circulation of all other New York evening newspapers *is less than it was ten years ago!* †

Only by adding the 350,000‡ followers of the four-year-old New York Evening Graphic to the total circulation of all other older evening newspapers can you get a true picture of New York's increased middle-class and of the evening papers read by these people—the men and women who are the mainstays of volume buying.

Unquestionably—you are not covering the New York market until your sales messages appear in the New York Evening Graphic. For details—address Mr. W. E. Robinson—350 Hudson Street, New York.

†Average daily circulation of all New York evening newspapers 1918 . . 1,667,192
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Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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This Talk of Overproduction

ON SEVERAL occasions the Automotive Daily News has called attention to the possibility that enthusiasm might lead to a greater production of vehicle units than the domestic market actually justifies. Schedules have undoubtedly been considered that would lift the total output of our factories above the level that we have the right to consider the maximum consumption potentialities of the market. This newspaper has, however, made clear its belief that the automotive industry is too solidly based on common sense to permit of any such overproduction.

The events of show week have confirmed this belief. In talking with the various manufacturers, we have discovered a complete understanding of the situation. These gentlemen believe that the market will permit a reasonable increase over last year's consumption of motor vehicles, but they are not planning any orgy of production and trusting to luck to get rid of the units after they are built.

In our show issues we had brief statements concerning the prospects of the coming year. Without exception these were moderate in tone. Several manufacturers did express confidence that the domestic market, plus the rapidly growing demand from abroad, would make possible a total production of more than 5,000,000 vehicle units. The Automotive Daily News believes that this expectation is entirely justified. We believe that American manufacturers can build and sell something over 5,000,000 vehicles, which will be a new record for the industry. It is a pleasure to be able to record that there is no present sign of intention to produce more vehicles than the potential market seems capable of absorbing.

The specter of overproduction, with its attendant cutthroat competition and its appalling used car problem, is not going to haunt the American automobile industry in 1929.

A Lot for the Money

NOW that the New York show is over we can view the developments that became apparent with some degree of calm and judicial understanding. Mechanical improvements were to be found everywhere; great beauty of body work; delightful color combinations were to be noticed on every hand.

To our mind, however, the outstanding feature of the New York show was the tremendous value offered for every dollar spent in motor transportation. Whether a purchaser selects a four clyinder job or a small six or a big eight, he is getting more for every dollar he spends than he ever did before.

At the recent show, for instance, the visitor had a chance to inspect the new Chevrolet six, which sells in the price class heretofore considered the stamping ground of the four. The show visitor also had a chance to read of the coming of the Roosevelt eight at a price under the $1,000 mark, a price class not before invaded by the eight-cylinder engine.

All along the line it is perfectly apparent that the manufacturers have been able to give more than ever before. In some cases it takes the form of mechanical improvements, in others it is added equipment, in still others greater beauty of line and color and in most of the cars on view it is a combination of all these.

One of the proudest boasts of the automotive industry is that "the automotive dollar buys more each year than it bought the year before." No industry can make a prouder boast, because this means that the manufacturer is passing on to his customers a generous share of his own improving artistry and the economies that increased skill enable him to make. This is certainly service in the highest meaning of the term.

New Branch of Marmon Fanning Company

DEMAND FOR MARMON CARS in East Orange, N. J., has become so great that the Marmon Fanning Company, distributor at Newark, has erected this new sales and service station as a branch in East Orange. The building has a frontage of 100 feet on Central Avenue and extends back the entire block to 20th Street.

TRUCK SALES UP IN COOK COUNTY

December Registrations Show 63 Per Cent. Increase

By WALTER BERMINGHAM

CHICAGO, Jan. 15.—New truck registrations in Cook county for December were 63 per cent. in excess of the same month the preceding year. Total listings were 393 compared with 241 in December, 1927.

Returns for the month resulted in several marked changes in the standings of preceding months. Ford led again, but second position went to Diamond T. White was third and International Harvester and Graham Brothers, which previously had vied for second and third places, dropped to fourth and fifth places, respectively, while Chevrolet, which led during most of the year, finished seventh, Mack taking sixth.

Ford's total of 215 was better than this make's showing in November, when the score was 176, and was the second highest of the year in its individual computations, October having been the best, with 217.

Introduction of new models, of course, was responsible for the Chevrolet slump. This line began to fall off in November following the announcement that a new series was pending.

Diamond T was aided by the new offerings which were revealed early in the month. There were thirty-nine registrations for this Chicago-made product. A distinguishing feature was the fact that Diamond T led, not only in smaller sizes outside of the Ford capacities, but also had more heavy duty registrations than any other make, Mack being second in the latter list.

White had 26, International Harvester, 24, and Graham Brothers, 14. Ninety-two and one-tenth per cent. of all registrations were of the 3-ton and under classification, the total of that division having been 362. The season decline affected practically all lines but the Ford. Twenty-six different makes were listed in the registrations.

The standing for December follows:—

Ford 215, Diamond T 39, White 26, International 24, Graham 17 Mack 16, Chevrolet 14, GMC 8, Reo 8, Available 3, Chicago 3, Federal 3. Two each—Autocar, Sterling and Stewart.

One each—Acorn, American La France, Fargo, Gotfredson, Hendrickson, King Zeitler, Nelson Le Moon, Reiland & Bree, Rugy, Walker and Whippet.

WILBUR GROOM ELECTED TO BUFFALO CHAMBER

Buffalo, N. Y., Jan. 15.—Wilbur F. Groom, president of the Groom Motor Car Company, Oakland Pontiac distributor here, was elected a director of the Buffalo Chamber of Commerce at the annual meeting of its members. He will serve in this capacity for three years.

CHEVROLET DEALERS OF HUDSON COUNTY PLAN FOR BIG SALES YEAR

Jersey City, N. J., Jan. 15.—Chevrolet dealers of Hudson County are preparing for a big 1929 with the new six-cylinder models. Three of the five dealers in this county announce additions and expansions, which include new branches, expansion of present quarters and the addition of new used car salesrooms.

M. H. Lanning, Jersey City Chevrolet dealer, will open this month at 3193-3197 Hudson Boulevard, his second branch sales and service station. The building will be two stories with the used car salesroom on the second floor.

The B. D. L. Motor Corporation of Union City has opened its used car showrooms in the new addition to the Union City Building. In addition, the corporation has opened a branch in Hoboken.

William Hufnagel, North Bergen dealer, has placed a new front on his showrooms and is planning to move his offices to the second floor to give increased room for display purposes.

All five Chevrolet dealers are sporting the new flashing electric signs adopted by Chevrolet dealers.

NORTHWEST SHOW WILL HAVE AIRCRAFT EXHIBITS

Minneapolis, Minn., Jan. 15.—The decision of three aircraft corporations to exhibit their products at the Northwest Auto Show, February 2 to 8, with a possibility that several others will follow suit, promises to make the midwinter motor classic of interest to flyers as well as drivers. Lack of floor space will prevent the showing of large planes, but plans are being made for a complete display of photographs of ships and factory operations.

HIGHLAND MOTOR SALES NOW IN NEW BUILDING

Baltimore, Jan. 15. — Highland Motor Sales, Inc., Nash distributorship, is now located in the company's new building at 3411-3413 Eastern Ave. The company acquired the Nash franchise last June and has since incorporated with the following officers: President, E. Louis Wienecke; vice-president, Philip Wienecke, Jr.; secretary, Milton Wienecke, and treasurer, Philip Wienecke, Sr.

CALENDAR OF COMING EVENTS

JANUARY

11-20—**Amsterdam, Holland.** Automobile show.
12-19—**Schenectady, N. Y.** Automobile show.
12-19—**Buffalo, N. Y.** Automobile show.
12-19—**Newark, N. J.** Automobile show.
12-19—**Philadelphia.** Automobile show.
12-19—**Milwaukee, Wis.** Automobile show.
13-19—**Cincinnati, O.** Automobile show.
14-18—**Los Angeles, Cal.** American Society for Steel Treating, semi-annual meeting.
14-18—**Los Angeles, Cal.** Western States Metal and Machinery Exposition.
14-19—**Springfield, O.** Automobile show.
14-19—**Atlanta, Ga.** Automobile show.
14-19—**Cleveland, O.** American Roadbuilders' Association, Inc., convention and show.
14-19—**Nashville, Tenn.** Automobile show.
15—**Cleveland, O.** Equipment for Motor Trucks, Inc., members and visitors meeting.
15-18—**Detroit, Mich.** Society of Automotive Engineers, annual meeting.
17-19—**Newburgh, N. Y.** Automobile show at State Armory.
19-21—**Montreal, Canada.** National Motor Show of Eastern Canada.
19-26—**Albany, N. Y.** Automobile Dealers Association, automobile show.
19-26—**Brooklyn, N. Y.** Automobile show at Twenty-third Regiment Armory.
19-26—**Atlantic City, N. J.** Automobile and Speed Boat Show on Young's Million Dollar Pier.
19-26—**New Brunswick, N. J.** Automobile show at Y. M. H. A.
19-26—**Pittsburgh, Pa.** Automobile Dealers Association, passenger car, accessory and shop equipment show.
19-26—**Detroit, Mich.** Detroit Automobile Dealers' Association Show at Convention Hall.
19-26—**Baltimore, Md.** Automobile show, 5th Regiment Armory.
19-26—**Louisville, Ky.** Automobile show at Armory.
20-26—**Columbus, O.** Automobile show.
21-26—**Wilmington, Del.** Automobile show.
21-26—**Scranton, Pa.** Automobile show.
21-26—**Rochester, N. Y.** Twenty-first Annual Automobile Show at Edgerton Park.
21-26—**Erie, Pa.** Automobile show.
21-26—**Williamsport, Pa.** Automobile Dealers' Show.
21-Feb. 2—**Atlantic City, N. J.** Automobile show at Million Dollar Pier.
23—**Detroit, Mich.** Auto Trade Association, Ninth Annual Convention at Book-Cadillac Hotel.
23-26—**New Haven, Conn.** Automobile show.
23-26—**Batavia, N. Y.** Automobile Dealers' Association Show.
23-Feb. 6—**Cairo, Egypt.** Second International Automobile Show.
24-25—**Greensboro, N. C.** North Calolina Automobile Trade Association, annual convention.
24-26—**Ravenna, O.** Portage County Automobile Show.
26-Feb. 2—**Miami, Fla.** Automobile show.
26-Feb. 2—**Allentown, Pa.** Automobile show.
26-Feb. 2—**Chicago.** Automobile Salon at Drake Hotel.
26-Feb. 2—**Chicago.** N. A. C. C. Show.
26-Feb. 2—**York, Pa.** York County Automobile Show.
26-Feb. 2—**Cleveland, O.** Automobile show.
26-Feb. 2—**Washington, D. C.** Automobile show.
26-Feb. 4—**San Francisco, Cal.** Automobile show.
28-29—**Chicago.** National Automobile Dealers' Association Convention at Palmer House.
28-Feb. 2—**Elmira, N. Y.** Automobile Merchants' Association, annual show.
28-Feb. 2—**Portland, Me.** Automobile show at Exposition Building.
28-Feb. 3—**Cumberland, Md.** Automobile show at State Armory.
29-Feb. 2—**Lancaster, Pa.** Automobile show.
30-Feb. 16—**Rome, Italy.** International Salon.

FEBRUARY

2- 9—**Hamlin, Minn.** Northwest Automobile Show.
2- 9—**Harrisburg, Pa.** Nineteenth Annual Automobile Show.
2- 9—**Minneapolis, Minn.** Northern Automobile Show at Livestock Pavilion.
2-10—**Seattle, Wash.** Automobile show.
4- 6—**St. Petersburg, Fla.** Automobile show.
4- 9—**Toledo, O.** Annual automobile show.
4- 9—**Ottawa, Canada.** Motor Show at Collineum.
4- 9—**Syracuse, N. Y.** Automobile show.
4- 9—**St. Louis, Mo.** Automobile show.
4- 9—**Grand Rapids, Mich.** Automobile show.
4- 9—**Wichita, Kan.** Automobile Dealers' Association Show.
5- 9—**Peoria, Ill.** Automobile show.
6- 9—**Cedar Rapids, Ia.** Automobile show.
7-10—**Rockford, Ill.** Twentieth Annual Motor Car Show.
9-16—**Kansas City, Mo.** Automobile show at American Royal Building.
9-16—**Los Angeles, Cal.** Automobile Salon at Hotel Biltmore.
11-16—**Binghamton, N. Y.** Automobile show, State Armory.
11-16—**Denver, Col.** Automobile show at Auditorium.
13-15—**Washington, D. C.** National Paving Brick Manufacturers' Association, annual meeting at Mayflower Hotel.
13-16—**Mankato, Minn.** Automobile show.
13-18—**Denver, Col.** Automobile show.
16-23—**Canton, O.** Automobile show.
16-23—**Hartford, Conn.** Automobile show.
16-23—**Providence, R. I.** Automobile show.
16-23—**Trenton, N. J.** Fourteenth Annual Automobile Show.
18-23—**Des Moines, Ia.** Automobile show.
18-23—**Omaha, Neb.** Automobile show.
18-23—**Memphis, Tenn.** Automobile show.
18-23—**Chattanooga, Tenn.** Annual automobile show.
21-23—**Holyoke, Mass.** Automobile show.
22-Mar. 3—**Copenhagen, Denmark.** Automobile exhibition of passenger cars.
23-Mar. 2—**San Francisco, Cal.** Automobile Salon at Palace Hotel.
25-Mar. 2—**Indianapolis, Ind.** Automobile Trade Association, annual automobile show.
25- —**Houston, Tex.** South Texas Annual Automobile Show.
25-Mar. 2—**Springfield, Mass.** Automobile show.
26-Mar. 2—**Evansville, Ind.** Eighteenth Annual Automobile Show.
27-Mar. 2—**Sioux City, Ia.** Automobile show.

S. A. E. Discusses Research and Foreign Market Needs

Brooks Presents Valuable Paper On Acceleration

(Continued from Page 1)

the business meeting in the late afternoon, when several formal reports were presented by title only. Organization of the nominating committee was perfected and F. E. Moskovics, chairman of the reorganization committee, gave his report.

J. A. C. Warner acted as chairman at the first evening's program, devoted to foreign automotive transportation, at which Mr. Mooney's paper was presented.

Col. Wall made his presidential address, a review of progress and a forecast of program, and there was an interesting motion picture, "The World Builds a Motor Car."

Wednesday will be devoted to sessions on "Engine Research" and a discussion of valve spring surge and the interpretation of engine indicator cards.

In the afternoon, Col. J. G. Vincent, Packard, is scheduled for an address in addition to the regular program, and the body session, sponsored by the Detroit section, will be a big feature.

William Lintern, president of the Nichols Lintern Company; W. H. Stewart, Republic Paint and Varnish Works, and Dr. Arthur C. Hardy, Massachusetts Institute of Technology, are down for this.

In the evening, the section will have a dinner and a meeting, at which reservations have already been made for nearly 750 guests. The speaker of the evening will be O. T. (Pop) Kreusser, in charge of the General Motors Proving Grounds, who will analyze and appraise the 1929 cars.

The paper prepared by J. D. Mooney, president of General Motors Export Company, and Clarence M. Foss, engineer of the General Motors staff, was presented by Mr. Foss. This paper was very comprehensive and covered the economic requirements of automotive road vehicles abroad.

Problems which have been met and solved on this side of the ocean are compared with analogous problems on the other side which have not as yet been solved and some of which are still to be encountered.

The difference in historical background, traditions and policies of the old world compared with those in the new world as they affect methods of transportation is discussed at length. These factors have great bearing on the future development of the European and Asiatic markets so far as automobiles are concerned.

The divided interests and nationalities abroad, as compared with the more closely knit interests in this country, which are greatly enhanced in the United States through the use of a common language, are other factors which were given careful consideration in Mr. Mooney's paper.

The difference in methods of taxation, many of which hamper the design of cars, the difference in manufacturing facilities, banking methods, credit conditions, road conditions and the sharp class division which are evident in many foreign countries are also discussed at length in the paper.

Labor problems abroad, according to Mr. Mooney, are more complicated and in many cases more serious than is the case in this country. Climate, which varies from tropical in some countries to arctic in others, offers still another problem in developing the foreign market as a whole.

Of equal importance are the natural resources of the various countries, as compared with the resources of the United States.

On the whole this paper is perhaps one of the most interesting and valuable papers to engineers who are engaged in the designing of cars for manufacturers and for sales executives who are attempting to push their products into the overseas market. Copies of the complete paper, as presented by Mr. Foss, are obtainable either at the Book-Cadillac Hotel in Detroit or at the headquarters of the S. A. E. in New York city.

In summing up and concluding his paper, Mr. Mooney says:—

"Summing up the considerations involved in the problem of determining the economic requirements of automotive road vehicles abroad it is found:—

"1. That while there are many differences between the American market and overseas market and internal differences within the overseas market, there is a major overall problem in the overseas market having the same general characteristics.

"2. That the automobile has become a definite and vital factor in the economic condition of the world and is considered the greatest creator of wealth the world has known.

"3. That there is a fundamental need and desire for automotive transportation in the overseas market as well as in the United States.

"4. That the American type automobile has been developed essentially for the requirements of the American market, and in its present form fulfills certain requirements in the overseas market.

"5. That the higher over-all costs of automobiles, upon their arrival in overseas markets, in comparison with the costs in the United States, together with the lower purchasing power of potential users throughout these markets, are major factors in limiting the availability of the present product to the buying public.

"6. That the needs of the overseas market are for products providing satisfactory low over-all cost automotive transportation that are made readily available to the buying public. These products include:—

"(a) Individually owned passenger and commercial cars, as typified by the present type automobile, for income receivers above the level of the large volume income class;

"(b) A different type of individually owned passenger car for the large volume income class;

"(c) Buses and trucks on a community basis for a great mass of small income receivers who cannot be reached by products of the other two types.

CONCLUSION

"After a consideration of the factors involved from all viewpoints we come to the conclusion that to more generally satisfy the economic requirements of automotive road vehicles abroad, it would be desirable:—

"1. To carry on with the work of improving automobiles and to further intensify effort toward making the present type products more readily available to the buying public. In this problem, to give intensive consideration to the open car. This phase is to provide products for income receivers above the level of the large volume income class.

"2. To provide an entirely new product for individual transportation in the form of a light car, which will be smaller and lighter than the present smallest American automobile and which will be less expensive to own and operate. This would provide transportation for income receivers in the large volume income class and fulfill the needs of a much greater potential market than exists for the present product.

"3. To provide trucks and buses on an organized communal transportation basis, i. e., for the mass movement of people and the bulk movement of commodities, which will supply a still greater potential market. This applies to the great mass of small income receivers who are not reached by products of the other two types."

A brief outline of the paper presented by Donald Brooks of the bureau of standards on the "Operating Factors and Engine Accelerations" is as follows:—

"This paper presents data on acceleration tests made with less than the full number of cylinders firing; on the effect of jacket temperature when the manifold temperature is low; on the effect of spark advance on acceleration; data obtained when accelerating as in low gear, and data showing the utility of the spark accelerometer in measuring engine friction.

"The test apparatus consisted of a 1926 model 3-port 6-cylinder overhead valve passenger car engine connected to apparatus imposing electrical and inertial loads such as to simulate level road conditions, in high gear except where otherwise stated.

"The spark accelerometer utilizes paper tape driven by the engine, sparks being discharged at regular time intervals through the tape.

TWO-CYLINDER ACCELERATION TESTS

"One of the major factors influencing engine acceleration is the performance of the manifold, particularly as regards the distribution of unvaporized gasoline. To study this point, several series of acceleration runs were made, firing on only a pair of cylinders during each run.

"In order that these tests might be more nearly comparable with six-cylinder acceleration tests no electrical load was imposed on the engine during the acceleration. Even with this load removed, however, the two-cylinder accelerations were only about half as large as the normal accelerations.

"Test conditions prior to the instant of opening the throttle were identical with those normally used.

"At the instant of throttle opening, the dynamometer field and grid switches were opened, removing the electrical load, and a switch was closed, grounding the ignition to four cylinders. At the conclusion of the acceleration, as soon as the throttle had been closed, the grounding switch was opened, and the dynamometer field and load switches were closed, restoring normal conditions for the three minutes' idling period between acceleration runs.

"The first series of tests made in this manner was run with aviation D, E and F fuels, with manifold at 9 degrees centigrade, and carburetor air-cooled to 3 degrees centigrade. In these, as in all subsequent tests, a normal 6-cylinder acceleration test was run as a preliminary to the 2-cylinder tests. The pairs of cylinders used in this series of tests were those having a common port, while in the subsequent tests cylinders were paired to give equal firing intervals. No difference in the acceleration can be positively ascribed to changing from unequal to equal firing intervals.

"The results obtained with aviation D, E, and F fuels vary slightly with the fuel, but show the same relative variation between the pairs of cylinders. Hence, only the curves for E fuel are shown. Cylinders 3 and 4 gave the best over-all acceleration, although exceeded by each of the other pairs of cylinders between 3 and 5 seconds after the start of the acceleration. While 5 and 6 did not accelerate as well as 1 and 2 in the early portion of the run, the better acceleration by the former in the latter portion of the run enabled it to pass 1 and 2 in speed time.

Tests made with United States Motor gasoline at nearly the same operating conditions; viz., manifold, 10 degrees centigrade and carburetor air, 7 degrees centigrade. The pairs of cylinders used in these tests, 1-6, 2-5 and 3-4, are such as to give equal firing intervals. Cylinders 3-4 gave the best acceleration throughout the entire speed range, with 1-6 second best. The fact that the pair, including cylinder two, gave the poorest acceleration in each case indicates bad distribution with respect to this cylinder.

"The effect of improvement in vaporization can be seen by comparing the results obtained with United States Motor gasoline at a manifold temperature of 59 degrees centigrade and with carburetor air at 27 degrees centigrade. The accelerations obtained with the various pairs of cylinders were nearly the same, as was the speed time.

"At the same temperatures runs were made using benzol instead of gasoline. The acceleration obtained with the separate pairs of cylinders was practically indistinguishable beyond 400 revolutions per minute, the speed time differing only by constant amounts introduced in the first two or three seconds of the runs.

"In conclusion, these series of tests, showing the effect of improving vaporization, indicate faulty distribution of liquid to cylinder 2 in particular, and to 1, 5 and 6 to a lesser degree, since tests with poor vaporization show marked differences between the cylinders, while with improving vaporization these differences vanish.

EFFECT OF JACKET WATER TEMPERATURE AT LOW MANIFOLD TEMPERATURE

"The effect of jacket water temperature on acceleration has been discussed, with the conclusion that jacket temperature under the test conditions had little effect on acceleration. In both tests, however, the manifold temperature was about 80 degrees centigrade.

"A series of tests was made with the manifold temperature 7 degrees centigrade, varying the jacket temperature from 19 degrees centigrade (brine) to 108 degrees centigrade (steam). An air-fuel ratio of about 9.1 was used in this series of tests. Even with this rich mixture it was very difficult to keep the engine operating between accelerations at the lower temperature. Due to the irregular operation at the lowest temperature, the acceleration run started from an engine speed of 270 r. p. m. instead of the intended 300 r. p. m.

"The conclusion from this series of tests is that at air fuel ratios sufficiently rich to insure good acceleration at low speeds, poor acceleration is obtained at higher speeds only when the jacket temperature is high. In addition, on the basis of these and other tests at low manifold temperatures, some loss of acceleration is found at both extremes of the jacket water temperature range studied, that at the higher temperatures being ascribed to decreasing volumetric efficiency, while rapidly increasing engine friction is believed responsible for the loss at very low jacket temperatures.

EFFECT OF SPARK ADVANCE

"The effect of spark advance on acceleration was studied, using both United States Motor gasoline and motor benzol. Throughout these tests the semi-automatic advance was in operation.

"Acceleration speed, obtained with gasoline and benzol, show that the acceleration with benzol is much less sensitive to spark advance than is that with gasoline. In part, this is due to the use of the same metering orifice, giving a 5 per cent. richer mixture with benzol than with gasoline; better vaporization, as evi-

(Continued on Page 11)

HAMMOND STANDISH & CO.

PACKERS & PROVISIONERS

F. W. VALIAFERRO, PRESIDENT
S. T. NASH, VICE PRESIDENT
C. H. VAN PARIS, SECRETARY
WALTER J. GRAHAM, TREASURER

20TH AND STANDISH STREETS

CABLE ADDRESS HAMSTAND

DETROIT, MICH.

December 8th, 1928

LOOK

General Motors Truck Co.
3925 Vermont Avenue
Detroit, Michigan.

Gentlemen:-

We have always felt that the standard practice of lubrication on trucks, was not entirely satisfactory, therefore we experimented with various types of lubricators and in September 1926 we equipped several trucks with the Myers Magazine Oiling System. Since then we have equipped our entire fleet with these units and found them satisfactory and efficient.

Therefore effective this date we are incorporating the following specifications on our future purchases of automobile trucks:-

"Lubrication for the various chassis bearings wherever possible to be furnished by the Myers Magazine Oiling System, providing for wick feed of oil to the various bearings. The oilers for the spring shackles and other bracketed bearings to be incorporated in the brackets themselves. All Oilers, whether integral or attachable to be equipped with ball valve caps for pressure filling."

Very truly yours,

HAMMOND STANDISH & COMPANY

H. M. Shulman

H. M. SHULMAN
DIRECTOR OF PURCHASES & MECHANICS

HMS:M

The Myers Magazine Oiling System is used and specified by such representative concerns as Arctic Dairy Products Co.—Cleveland Railway Co.—Detroit Cab Co.—Detroit Edison Co.—Detroit News—Detroit Street Railways—Standard Oil Co. (Indiana), all of which have used this system from 2 to 4 years.

New Jersey Parts, Accessory Plants Adding Equipment

NEWARK, N. J., Jan. 15.—New Jersey manufacturers of automotive parts, accessories and replacements have been working full time during the past year with many concerns having built additions to plants and added new machinery to take care of the increased business.

Total amount of sales in the tire trade in dollars and cents was somewhat lower for the year, due to several price cuts; in the number of tires sold, however, the total output is well ahead. Net earnings for the year are slightly lower.

Manufacturers of paint have been working full time, total volume of salles being well ahead for the year. Due to the trend toward the use of lacquer, varnish manufacturers have suffered somewhat.

Foundries in and around Newark closed the year about equal to 1927. Conditions in this industry the last two years have not been any too favorable.

Automobile and accessory dealers are well ahead of last year in the volume of sales. New improved models at reduced prices have stimulated sales considerably. The used car market is fairly good.

E. E. Warfield, manager of the automotive replacement division of the Manhattan Rubber Manufacturing Company, Passaic, reports a 12 per cent. increase, over 1927 in sales. Chief among the new lines offered for 1929 is the Hycoe molded lining in rolls. Other new products will be car mats, air hose, water hose, generator tubing, pump tubing, welding hose, car washer hose, radiator hose and fan belts.

Further advertising and sales promotion, for which $30,000 additional has been appropriated, are planned for this year, according to Manager Warfield. The Passiac factory is operating at full capacity.

The Rogers Products Company of Jersey City, manufacturers of lubricating equipment, through Charles Zabriskie, reports an increase of 105 per cent. in 1928 over 1927. The concern is installing additional equipment to increase its output and is adding to its present lines. Capacity operation is reported.

C. Edward Murray, Jr., president of Murray Rubber Company, Trenton, reports that in 1928 the concern increased its sales 10 per cent. in units. The plant is operating at 40 per cent. capacity.

The Koeppen Metal Products' Company's new plant, for the manufacture of chromium plating, is operating at capacity in Carlstadt. The factory, a three-story brick and steel building, is located at 13th Street and Division Avenue. The company was formerly located in Union City, but due to tremendous growth in 1928 was forced to seek larger quarters.

The General Lead Batteries Company, Newark, is operating at capacity, and while sales increased substantially over 1927 business, A. H. Mustard, sales manager, said he is not as yet in position to announce the extent of the gain.

The Cope Company of Irvington, body builder, announces that 1928 business equaled that of the previous year. The concern started the new year with operations about 75 per cent. of capacity.

HEIMBACH'S AUTO SUPPLY OCCUPIES NEW QUARTERS

Camden, N. J., Jan. 15.—Formal opening of the new store of Heimbach's Auto Supply Company at 1025 Mount Ephraim Ave. took place recently. At the formal opening the company entertained more than 500 guests in the dealer trade.

The new store location places this company in the center of the Camden automotive district. The shop in the new establishment is equipped with all of the latest machinery.

SIMS TIRE COMPANY MOVES

Jacksonville, Fla., Jan. 15.—Claude Sims, head of the Sims Tire Company, announces the removal of the Atlantic Tire Company to his location at 618-620 W. Adams St.

BENZ SPRING BUILDING NEW PLANT IN SEATTLE

Seattle, Wash., Jan. 15.—August Benz, head of the Benz Spring Company, Portland, is here to assist O. N. Edmiston, local manager, in the installation of a plant to manufacture springs of all types and to distribute Standard Safety Corporation products in this region. The Benz company's territory includes. Washington, Oregon, Idaho and Montana.

Gruss Air springs will be distributed in Washington and Oregon by this firm. The new S. S. Corp product, Wood-lites, will forthwith be introduced.

LEE TIRE OCCUPYING NEW SALES BUILDING

Los Angeles, Jan. 15.—The Lee Tire and Rubber Company has occupied the one-story and mezzanine building, recently completed at 240 West 15th St., where it will conduct its retail tire business. The lease, drawn for a term of five years, calls for a total rental of about $15,000.

NEW BRANCH MANAGER

Vancouver, B. C., Jan. 15.—G. H. Clotworthy has arrived in Vancouver to act as new branch manager of Dunlop Tire and Rubber Goods Company, Ltd., 401 Cordova St. West. He comes to Vancouver from Calgary, where he had a similar post for ten years. Mr. Clotworthy's connection with Dunlop's goes back to 1910, when he joined the office at Toronto, proceeding to Saskatoon in 1912, and remaining there till his appointment to Calgary.

PIERCE PETROLEUM OPENS FIRST "GASOLINE PALACE"

Springfield, Mon., Jan 15.—The Pierce Petroleum Company's first unit of a chain of "gasoline palaces," with hotel accommodations and tourist cabins, as well as every kind of automobile service, will be built soon on a tract of land just east of here at the junction of U. S. Highways 60 and 65, according to J. A. Tolerton, general manager for the firm in the Springfield territory.

The local unit will cost about $10,000. The tract consists of thirty-five acres at the southeast corner of Glenstone Road and Kearney Street.

OTIS STEEL COMPANY INCREASES PRODUCTION

New York, Jan. 15.—Capacity operations for many departments of the Otis Steel Company have been inaugurated since the beginning of the year. Production schedules are being expanded with the increase in orders from the automobile industry and other large consumers. "Business now in sight indicates the most active first quarter in the company's history," said President E. J. Kulas.

TOLEDO EMPLOYMENT NEAR TOP RECORD FOR ALL TIME

Toledo, Jan. 15.—Fifty-one major plants here, mainly automotive, report 40,712 workers in the week ended January 11, an increase of 2,904 over the preceding week and comparing with 24,144 a year ago. This is the greatest gain reported in one week in more than five years and brings employment close to the record set last June.

U .S. AIR COMPRESSOR MAKES STAFF CHANGES

New York, Jan. 15.—Changes in the sales organization of the United States Air Compressor Company, affecting a number of men widely known in the automotive field, have just been announced.

Kenneth S. Clapp, for four years manager of sales, becomes director of sales. Harry H. Davis, for three years district manager in the Central West, and for the past year western manager, becomes sales manager. E. W. Bettis, formerly southeastern district manager, is now in charge of Ohio, Kentucky, West Virginia and western Pennsylvania, with headquarters in Cleveland. George Calhoun, widely known in the Southeast where he has handled automotive lines for eight years, becomes southeastern district manager, covering Virginia, North and South Carolina, Florida, Georgia, Alabama, Mississippi, Louisiana, Arkansas and Tennessee. George Collins will operate under Mr. Calhoun as missionary salesman. A. F. Jordan and H. R. Williams, who have been connected with the company for several years, will have charge of the distribution of United States Air Compressor products in the city of Detroit and the lower peninsula of Michigan.

POTTER JOINS MODINE AS DIVISION HEAD

Waterloo, Ia., Jan. 15.—Miles S. Potter, general superintendent and purchasing agent of the John Deere Tractor Company, with which he had been associated ten years, has resigned to become general manager of the heating division of the Modine Manufacturing Company, Racine, Wis, manufacturer of automobile radiators and unit heating systems. Mr. Potter is succeeded here by Joseph L. Cramer, formerly purchasing agent for the John Deere Harvester Works in Moline, Ill.

RYAN OF INDIA TIRE MAKING WESTERN TRIP

Akron, O., Jan. 15.—F. L. Ryan of the India Tire and Rubber Company, who left Akron for an extended trip of the middle west, western and coast territory, is now in Seattle and reports that the outlook for 1929, so far as tire business is concerned, is gratifying and that the trend of buying on the western coast is growing more every day to quality products.

Mr. Ryan will return to Akron on January 20, making his return trip by the southern route, through Dallas and the southwest.

NAMED DISTRIBUTOR

Evansville, Ind., Jan. 15.—The Automotive Electric Corporation Service, 312 South Water St., has been appointed distributor in southern Indiana and Illinois and western Kentucky of the Delco-Remy battery for starting, lighting and ignition systems, George B. Sligh, manager, announced today.

REPAIR COURSE FOR OWNERS

Boston, Mass., Jan. 15.—An automobile repairing course for owners and operators began today in the Massachusetts Art School Building, under the auspices of State University Extension. John J. Gildee is the instructor. He is head of the automotive department of the Lowell Vocational School.

Passenger Car Equipment and Accessories

Name and	Speedometer	Clock	Fuel Gauge	Lock	Spark Plugs	Battery	Heat Indicator	Model Cig. Lighter	Smoking Set	Vanity Set	Make of Body Finish Used	Stop Light	Parking Light	Windshield Wings	Heater	Front Bumper	Rear Bumper	Wire Wheels*	Shock Absorber
Auburn 120	Ste	—	K-S	Ele	Cha	USL	Moto-M	Cas	GR	—	Mur	Ind	In	*Troy	*Kel	Balc	Balc	Day	cLov
Auburn 8-90	Ste	—	K-S	Ele	Cha	USL	Moto-M	Cas	GR	—	Mur	Ind	In	*Troy	*Kel	Balc	Balc	Day	cLov
Auburn 6-80	Ste	—	K-S	Ele	Cha	USL	Moto-M	—	—	—	Mur	Ind	In	*Troy	*Kel	Balc	Balc	Day	cLov
Buick 115	AC	—	Gro	Her	AC	Ex	AC	Cuno	Fis	Fis	Duco	D-R	D-R	—	—	—	—	Buffalo	cLov
Buick 121	AC	—	Gro	Her	AC	Ex	AC	Cuno	Fis	Fis	Duco	D-R	D-R	—	—	—	—	Buffalo	cLov
Buick 129	AC	—	Gro	Her	AC	Ex	AC	Cuno	Fis	Fis	Duco	D-R	D-R	—	—	—	—	Buffalo	cLov
Cadillac	AC	Jag	Nag	D-R	AC	Ex	AC	Cas	Tern	Tern	Duco	Own	Hal	Del	*Kel	USE	USE	Buffalo	cLov
Chandler 65	Ste	—	Moto-M	Ele	AC	Pre	Moto-M	—	†GR	—	Ditz	Cor	Cor	—	—	Ster	Ster	K-H	*Lov
Chandler Big 6	Ste	—	Moto-M	Ele	AC	Pre	Moto-M	—	GR	GR	Ditz	Cor	Cor	—	Per	Ster	Ster	K-H	*Lov
Chand. Royal 85	Ste	—	Moto-M	Ele	AC	Pre	Moto-M	—	GR	GR	Ditz	Cor	Cor	—	Per	Ster	Ster	K-H	*Lov
Chand. Royal 75	Ste	—	Moto-M	Ele	AC	Pre	Moto-M	—	GR	GR	Ditz	Cor	Cor	—	Per	Ster	Ster	K-H	Lov
Chevrolet AA	AC	—	Roc	*Ign	AC	USL, Ex	—	—	Fis	—	Duco	D-R	—	—	Own	Own	Own	—	—
Chrysler 75	AC	—	Moto-M	Ele	Cha	Wil	Moto-M	—	—	—	DucoVal	Hal	—	Kok	—	Ste	Ste	—	Lov
Chrysler 65	NE	Sha	Moto-M	Sha	AC	Wil	—	—	—	—	DucoVal	Hal	—	Kok	—	Ste	Ste	—	Lov
Chrysler 80	AC	Ster	Moto-M	Ele	Cha	Wil	Moto-M	Cas	—	Cas	DucoVal	Hal	—	Kok	Bov	Ste	Ste	Buffalo	cHou
Davis 99	Ste	—	Moto-M	Joh	AC	Wil	Moto-M	—	GR	GR	Duco	Cor	—	—	Per	Balc	Balc	—	cHex
De Soto	Yes	—	—	Ele	—	Wil	—	—	Yes	Yes	—	Yes	—	—	—	Yes	Yes	—	—
Dodge Senior 6	NE	—	Moto-M	B&S	Cha	Wil	Moto-M	—	GR	ElGR	—	Cor Ind	Cor	Ind —	—	CG	CG	—	Lov
Dodge New Six	NE	—	Moto-M	B&S	Cha	Wil	Moto-M	—	GR	GR	—	Cor Ind	Cor	Ind —	—	CG	CG	—	Lov
Durant Four	Ste	—	Roc	—	Cha	USL	—	—	—	—	VEP	Cor	Cor	†Kok	—	Bad	Eat	Budd	Binel
Durant 66	Ste	—	Nag	Sha	Cha	USL	Safe T	—	—	—	VEP	Cor	—	Kok	—	Bad	Bad	†Yes	Gab
Durant 70	Ste	—	Nag	Sha	Cha	USL	Safe T	—	—	—	VEP	Cor	—	—	—	†Bad	†Bad	†Yes	Lov
Durant 60	Ste	—	Roc	Sha	Cha	USL	—	—	—	—	VEP	Cor	—	—	—	Bad	Bad	—	—
Elcar 6-75	Ste	—	Ster	Sha	AC	USL	Moto-M	—	—	—	yMur	Bro	Hal	Yes	—	Ste	Ste	—	—
Elcar 8-95	Ste	—	Ster	Sha	AC	USL	Moto-M	—	—	—	—	—	—	Yes	Yes	Ste	Ste	—	Lov
Elcar 8-120	Ste	Ster	Nag	Sha	AC	USL	Moto-M	Yes	—	—	—	—	—	Yes	Yes	Ste	Ste	—	Lov
Erskine Six	Ste	—	K-S	Her	Cha	Wil	—	—	—	—	Gli	Yes	Yes	—	—	Eat	Eat	—	—
Essex Super 6	Ste	—	Moto-M	Ele	AC	Ex	Moto-M	—	—	—	sDitz	J B	—	—	—	Eat	Eat	MotoW	Mon
Ford A	Ste	—	Own	Ele	Cha	Own	—	—	—	—	—	Yes	—	—	—	—	—	Own	cHou
Frank'n Air, Ltd.	NE	Jag	Nag	Ele	Cha	USL	—	Cas	GR	GR	DucoVal	Bro	Bro	—	Kel	CG	CG	—	cWat
Gardner 130	Ste	Phi	Moto-M	D-R	Cha	Pre	Moto-M	Cun	GR	—	Ditz	Cor	Cor	—	—	Balc	Balc	—	Lov
Gardner 125	Ste	—	Moto-M	D-R	Cha	Pre	Moto-M	—	—	—	Ditz	Cor	Cor	—	—	Balc	Balc	—	Lov
Gardner 120	Ste	—	Moto-M	D-R	Cha	Pre	Moto-M	—	—	—	Ditz	Cor	—	—	—	CG	CG	—	Lov
Graham-Pg 612	NE	—	K-S	Her	Cha	Wil	Moto-M	Cun	—	—	sClev	Cor	Cor	—	Kel	Ste	Ste	—	Lov
Graham-Pg 615	NE	—	K-S	Her	Cha	Wil	Moto-M	Cun	—	—	sEgyp	Cor	Cor	—	Kel	Ste	Ste	—	Lov
Graham-Pg 621	NE	†Ster	K-S	Her	Cha	Wil	Moto-M	Cun	—	—	sDitz	Cor	Cor	—	Kel	Ste	Ste	—	Hou
Graham-Pg 827	NE	†Ster	K-S	Her	Cha	Wil	Moto-M	Cun	—	—	sDitz	Cor	Cor	—	Kel	Ste	Ste	—	Hou
Graham-Pg 837	NE	†Ster	K-S	Her	Cha	Wil	Moto-M	Cun	—	—	sDitz	Cor	Cor	—	Kel	Ste	Ste	—	Hou
Hudson Super 6	Ste	—	Moto-M	Ele	AC	Ex	Moto-M	—	—	—	sDuco	J B	—	—	—	Eat	Eat	MotoW	Wahl
Hupmobile A	Ste	—	Ster	Elec	Cha	Wil	Moto-M*	—	—	—	Val	Own	Hal	—	—	—	—	—	Mon
Hupmobile M	Ste	—	Ster	Elec	Cha	Wil	Moto-M*	—	*Yes	*Yes	Val	—	Hal	—	—	—	—	—	Mon
Jordan E	Ste	Ster	Nag	Her	Cha	Wil	Moto-M	—	Elg	Elg	sDuc Val	Gui	Gui	Per	—	Bif	Bif	K-H	cHou
Jordan G	Ste	Ster	Nag	Her	Cha	Wil	Moto-M	—	Elg	Elg	sDuc Val	Gui	Gui	—	—	Bif	Bif	K-H	cHou
Kissel 6-73	AC	Yes	Gro	Ign	AC	Wil	AC	Cas	Yes	Yes	Mim	Sto	—	—	Per	Bad	Bad	—	Lov
Kissel 8-95	AC	Yes	Gro	Ign	AC	Wil	AC	Cas	Yes	Yes	Mim	Sto	—	—	Per	Bad	Bad	—	Lov
Kissel 8-126	AC	Yes	Gro	Ign	AC	Wil	AC	Cas	Yes	Yes	Mim	Sto	—	—	Per	Bad	Bad	Day	Lov
LaSalle	AC	Jag	Nag	D-R	AC	Ex	AC	Cas	Tern	Tern	Duco	Own	Hal	Del	*Kel	USE	USE	Buffalo	cLov
Lincoln 8	Wal	Wal	K-S	Her	Cha	Ex	—	Cuno	Cun	Cas	DucoVal	Own	Own	Own	—	Bif	Bif	Own	cHou
Locomobile 90	Wal	Wal	U S	Yal	Cha	USL	—	Met	GR	GR	Duco	Aga	—	—	—	Buck	—	Buffalo	cLov
Locomobile 48	Wal	Wal	Bos	Yal	Cha	Pre	—	Met	GR	GR	Duco	Aga	—	—	—	Buck	—	Buffalo	cLov
Marmon 68	Ste	—	Moto	Sha	Cha	Pre	Moto-M	—	Elg	Elg	DucoVal	Hal	Hal	Per	—	Ste	Ste	Day	Lov
Marmon 78	Ste	Borg	Moto	Sha	Cha	Pre	Moto-M	Cas	Elg	Elg	DucoVal	Hal	Hal	Per	—	Ste	Ste	Day	Lov
Moon 6-72	Ste	—	Moto-M	Joh	Cha	USL	Moto-M	—	Yes	Yes	sGli	Ind	—	—	—	Yes	Yes	—	Lov
Moon 8-75	Ste	Hun	Moto-M	Joh	Cha	USL	Moto-M	Yes	GR	GR	sGli	Ind	—	Yes	Hill	Yes	Yes	—	aHar
Moon 8-80	Ste	—	Moto-M	Joh	Cha	USL	Moto-M	—	—	—	sGli	Ind	—	—	—	Yes	Yes	Yes	Lov
Nash Adv. 6	Ste	†GE	K-S	B&S	AC	USL	Moto-M	†Yes	†Yes	†Yes	xDuc	Yes	Hal	—	—	Ste	Eat Ste	—	Hou
Nash Special 6	Ste	—	K-S	B&S	AC	USL	Moto-M	—	GR	GR	xDuc	Yes	Hal	—	—	Bif	Bif	—	Lov
Nash Stand. 6	AC	—	K-S	B&S	AC	USL	Moto-M	—	—	—	xDuc	Yes	Bro	—	—	Bif	Bif	—	Lov

Albany Metal Trade Survey Shows Gain in Employment

By S. E. KENNEDY

Albany, N. Y., Jan. 15.—A survey of the metal trades group by the Industrial Advancement Corporation taking in iron and steel producing plants showed a monthly gain of 1.6 per cent. over the previous month with 91 per cent. of workers being employed on an average schedule of 100 per cent. full time hours.

Holders of stock in the Ludlum Steel Company, Watervliet, were given the right to subscribe to a new issue of 46,000 shares of preferred stock. It was announced that one share of the new 6 per cent. preferred stock will be exchanged for three shares of the common stock outstanding with the right to subscribe continuing until January 20.

A large increase in the population of Massena is predicted when the new aluminum mills now under construction and covering several acres are placed in operation early next summer.

At Schenectady the General Electric Company is employing a considerable number in excess of last year's force at this time, while improved business conditions are also being experienced by the American Locomotive Works. The General Electric Company is now employing approximately 21,000 workers, due mainly to increased activity in the radio and other new manufacturing units.

The Thousand Island Marine Corporation, Inc., Alexandria Bay, is constructing a large two-story addition to its plant on Miller Avenue, in accordance with a vast expansion program. The corporation is also building a machine shop next to its boat factory, which will be equipped with new and modern electrically driven machinery. Glenn Furness is president of the growing firm. The company has just received a large contract to build twenty cruisers during the winter, and day and night schedules are now being observed.

PATERSON FIRM MOVES, TAKES ON KENYON TIRES

Paterson, N. J., Jan. 15.—The Auto Garage and Machine Company has moved its establishment from Madison Avenue to 191-193 Van Houten St., near Paterson Street.

John See and Matt Weinstein, local automobile men, are the owners of the company and they announce that a new line has been added, that of the Kenyon tires.

PHARIS TIRE BUILDING NEW BRICK ADDITION

Newark, O., Jan. 15.—The Pharis Tire and Rubber Company, with plants here, is starting the erection of a new brick building, 90x100 feet, of a type similar to those now used. The building will be completed within 45 days, and with the installation of new machinery, already purchased, will permit production of approximately 5,000 tires and up to 10,000 inner tubes daily.

HUGH ROSS BUYS OUT PARTNER IN TIRE CO.

Louisville, Ky., Jan. 15.—Hugh Ross of the Miller Ross Tire Company, Louisville, has purchased the interest of his partner, H. B. Miller, in the business, which will continue under the old name.

It is planned to add a line of batteries, and also put in racks for washing and greasing. The company moved to its new location on December 29. From January 1 to 10, the company is offering free tube repairs where tubes are brought in, and worthy casings will be repaired at a price of $1.50.

G. M. PUTTING PITTSBURGH OFFICES UNDER ONE ROOF

Pittsburgh, Pa., Jan. 15. — The General Motors Corporation today closed negotiations for space in the new Grant skyscraper, which is declared to be the first step toward housing the executive and clerical offices of all of the Pittsubrgh district activities of the General Motors Corporation under one roof.

The deal announced today was for the lease of three suites of offices on the sixth floor of the Grant Building to the Motor Accounting Company, a newly formed subsidiary of General Motors, for the handling of accounts and auditing of automobile branches and dealers through this district. R. A. Dickinson of Detroit has taken charge as zone manager.

J. L. PETE HEADS COUNTY COMMSSIONERS' BOARD

Duluth, Minn., Jan. 15.—Jacob L. Pete, Dodge dealer at Ely, Minn., and member of the Board of County Commissioners for the last year, was elected chairman of the board at the annual meeting.

CANADIAN TIRE EXPORTS SHOW GAIN IN NOVEMBER

Washington, Jan. 15.—Exports of tires and tubes from Canadian factories showed an increase in November over October, the rubber division of the Department of Commerce announced today. A total of 176,332 casings were shipped abroad in November, as compared with 136,459 in the previous month. The average declared value per casing in November was $8.92 as compared to $9.43 in October and $9.64 in September.

NAME BOARD MEMBERS OF CINCINNATI CAR CORP.

Albany, N. Y., Jan. 15.—Frederic Pruyn, O. F. Warhus, Godfrey Rockefeller and Frederick Mosely will become members of the board of the new corporation which is the outcome of the consolidation of the Versare Corporation of Albany with the Cincinnati Car Company. The new company will be known as the Cincinnati Car Corporation, with a reported capitalization of $2,500,000.

MENGEL PUTS ENLARGED PLANTS INTO OPERATION

Louisville, Ky., Jan. 15.—The Mengel Company, Louisville, reports that it is now in operation with its new units and enlarged body producing plants, although all machinery has not been installed as yet. Work was started with ground breaking on Labor Day for the big units, doubling the capacity of the 4th Street plant, and these were completed before Christmas.

Black Bros. Motor Products Awards Building Contracts

Vancouver, B. C., Jan. 15.—Two contracts have been awarded by Black Brothers Motor Products, 1335 Granville St., motor products dealer and automobile top and body builder, to Bedford Davidson, 1012 Broughton St., for the erection of new bulidings to house the firm's business. One of the new structures will be located on Howe Street and the other on Granville Street, both in the 1300 block. They will be directly opposite each other, with only the lane between.

The new buildings will represent a total expenditure by the owners of approximately $27,000. Mr. Davidson has started work on the excavation for the Howe Street block. Work on the Granville Street building will be put under way shortly.

Both buildings will be of hollow stone tile and brick construction with trussed roof and tar and gravel covering. Plate glass fronts will be installed. Heating will be by hot water.

ROCHESTER GARAGE MEN ELECT NEW OFFICERS

Rochester, N. Y., Jan. 15.—The Rochester Garage Owners' Association elected new officers and directors at the first meeting held in the new home at 798 Main Street West last night.

The new officerse are: President, Otto Schnabel; vice-presidents, Robert Watkins, Roy Deffendorf, George Hatz; treasurer, George Spacher; sergeant-at-arms, Frank L. Sherwood, and executive secretary, Charles W. Punch.

All officers and Harold Rothaug and John E. Schlegel were named directors.

VLCHEK TOOL COMPANY MAKES PLANT ADDITIONS

Cleveland, O., Jan. 15.—Extensive additions are under way at the plant of the Vlchek Tool Company here. During the past several months, available floor space has been increased by 15 per cent. and the productive capacity of the plant increased 20 per cent. In the near future construction work now under way will result in further increases of some 10 per cent. in productive capacity.

GENERAL ELECTRIC ORDERS

Schenectady, Jan. 15.—Orders received by the General Electric Company during the year 1923 amounted to $348,848,512 compared with $309,784,623 for 1927, an increase of 13 per cent., President Gerard Swope announced today. The orders for the December quarter amounted to $88,162,049, compared with $76,708,532 for the last quarter of 1927, an increase of 15 per cent.

OCCUPIES NEW PLANT

Camden, N. J., Jan. 15.—Rud. Preisendanz Sons, motor truck body builders, are now located in their new plant at 1706-1716 Federal St.

Passenger Car Equipment and Accessories

Name and Model	Speedometer	Clock	Fuel Gauge	Lock	Spark Plugs	Battery	Heat Indicator	Cig. Lighter	Smoking Set	Vanity Set	Make of Body Finish Used	Stop Light	Parking Light	Windshield Wings	Heater	Front Bumper	Rear Bumper	Wire Wheels*	Shock Absorber
Oakland All-Am	AC	—	K-S	D-R	AC	Wil	—	—	†Fis	†Fis	Duco	D-R	Ind	—	—	CG	CG	Mot W	cLov
*Oldsmobile	AC	—	K-S	D-R	AC	Wil	AC	—	Tern	—	§Duco	D-R	D-R	—	—	Own	Own	M W	cLov
Packard 626, 633	NE	Jag	K-S	—	Cha	Pre	Moto-M	Cas	Own	Cas	sVal	Own	Own	Yes	Kel	Cen	Cas	—	Own
Packard 640, 645	NE	Jag	K-S	—	Cha	Pre	Moto-M	Cas	Own	Cas	sVal	Own	Own	Yes	Kel	Cen	Cas	—	Own
Peerless 91	AC	Elg	Moto-M	Ele	Cha	Ex	Moto-M	—	G R	G R	Val	Gui	Gui	Kok	—	Bif	—	—	Lov
Peerless 81.....	AC	Elg	Moto-M	Ele	Cha	U S L	Moto-M	—	G R	G R	Val	Cor	Cor	Kok	—	Bif	—	—	Gab
Plymouth	N E	—	Roc	Sha	A C	Wil	—	—	—	—	Duco	Cor	—	—	—	—	—	—	—
Pontiac 6-28 ...	AC	—	K-S	D-R	AC	Pre	—	—	†Fis	†Fis	Duco	D-R	D-R	—	—	CG	CG	Buffalo	cLov
Reo Mate	Ste	—	Moto-M	Ele	Cha	Wil	A C	—	Elg	Elg	sDitz	Gui	Gui	—	Kel	CG	CG	—	a†Lov
Reo Flying Cl'd.	Ste	—	K-S	Blos	Cha	Wil	A C	—	G R	G R	sDitz	Gui	Gui	—	Kel	CG	CG	—	cLov
Ste'rns-K.H. 8-90	Ste	Wal	Nag	Ele	Cha	U S L	—	Cuno	†Elg	†Elg	sVal	Hal	Gui	†Yes	—	Bif	Eat	Bif	Buffalo	cHou
Stearns-K.J 8-90	Ste	Wal	Nag	Ele	Cha	U S L	—	Cuno	†Elg	†Elg	sVal	Hal	Gui	†Yes	—	Ste	Ste	Buffalo	cHou
Studebak. Dict..	Ste	—	K-S	Her	Cha	Wil	Yes	—	—	—	Gli	Yes	Yes	—	—	Eat	Eat	—	cMon
Studebaker Com	Ste	—	K-S	Her	Cha	Wil	Yes	*Yes	—	—	Gli	Yes	Yes	—	—	Eat	Eat	—	cMon
Studebaker Pres	Ste	Yes	Nag	Her	Cha	Wil	Yes	Yes	Yes	Yes	Gli	Yes	Yes	—	—	Eat	Eat	—	cMon
Stutz BB	AC	N H	Gro	Mil	Cha	Pre	A C	Cas	Elg	Elg	Val	Bro	—	Kok	—	Buck	Buck	Buffalo	cLov
Whippet Four..	Ste	—	Roc	Ele	Cha	U S L	—	—	—	—	Mou	Ind	—	—	—	—	—	Buffalo	aGab
Whip. 6, Mod 98	Ste	—	Roc	—	Cha	U S L	—	—	—	—	Mou	Ind	—	—	—	—	—	Buffalo	aGab
Willys-K. Sta. 6	Ste	—	Nag	—	Cha	U S L	—	—	—	—	Mou	Ind	Yes	—	—	—	—	Buffalo	cGab
Willys-K. Spl. 6	Ste	—	K-S	Ele	Cha	U S L	Moto-M	—	G R	G R	Mou	Ind	Yes	—	—	—	—	—	cGab
Willys-K. 70B ..	Ste	—	Nag	Ele	Cha	U S L	Moto-M	—	G R	G R	Mou	Ind	Yes	—	—	—	—	††Buf	cBosch

KEY TO ABBREVIATIONS USED IN THIS TABLE

GENERAL

*In addition to its regular line Oldsmobile also offers a de luxe line. De luxe equipment includes: Six wire wheels (with six tires and tubes), two wheels carried in front fender wells and securely locked in position, chromium-plated headlamps, four spring boots, folding trunk rack at rear and sheet metal (fenders, etc.) ducoed in color on those models on which ducoed sheet metal is more harmonious than is black enameled sheet metal.
Moto Meter equipment supplied by the factory at dealer's option.
Z—Optional. †On some types.

SPEEDOMETER

AC—AC Spark Plug Co., Flint, Mich.
NE—North East Electric Co., Rochester.
Ste—Stewart-Warner Speedometer Corp., Chicago.
Wal—Waltham Watch Co., Waltham, Mass.

CLOCK

Chel—Chelsea Clock Co., Boston, Mass.
El or Elg—Elgin Clock Co., Elgin, Ill.
GE—General Electric Co., Schenectady.
Hun—Hunter; see Elg.
Jag—Jaeger Watch Co., New York city.
NH—New Haven. See Phi.
Phi—Phinney-Walker Co., New York city.
Ster—Sterling Electric Clock Corp., New York city.
Wl or Wal—Waltham Watch Co., Waltham, Mass.

FUEL GAUGE

Bos—Boston Auto Gage Co., Pittsfield, Mass.
Gro—Grolan Co., Dayton, O.
KS—King-Seeley Corp., Ann Arbor, Mich.
Nag—Safe-T-Stat Co., Brooklyn, N. Y., and Toledo, O.
Moto-M—Moto Meter Co., Inc., L. I. City, N. Y., and La Crosse, Wis.
Roc—Rochester Mfg. Co., Rochester, N. Y.
Ster—Sterling Electric Clock Corp., New York city.
US—U. S. Gauge Co., New York city.

LOCK

B&S—Briggs-Stratton Co., Milwaukee.
Blos—Blossom.
Clum—Clum Mfg. Co., Milwaukee, Wis.
Corb—Corbin Cabinet Lock Co., New Britain, Conn.
Ele—Mitchell Specialty Co., Holmesburg, Philadelphia.
Elec—Electro Lock.
D-R—Delco-Remy Corp., Anderson, Ind.
Her—Hershey Mfg. Co., Chicago.
Ign—Ignition.
Sar—Sargent & Co., New Haven, Conn.
Joh—Johnson Automobile Lock Co., St. Louis, Mo.
Mil—Miller Lock Co., Philadelphia.
N. E.—North East Electric.
Sha—Shaler Lock Co., Milwaukee, Wis.
Tra—Transmission.
War—Warner Gear Co., Muncie, Ind.
Yal—Yale & Towne Mfg. Co., Stamford, Conn.
*Coincidental St. Gear & Ign.

SPARK PLUGS

AC—AC Spark Plug Co., Flint, Mich.
Cha—Champion Spark Plug Co., Toledo, O.

BATTERY

Ex—Electric Storage Battery Co., Philadelphia.
Pre—Prest-O-Lite Co., Indianapolis, Ind.
USL—U. S. L. Battery Corp., Niagara Falls, N. Y.
West—Westinghouse.
Wil—Willard Storage Battery Co., Cleveland, O.

HEAT INDICATOR

AC—AC Spark Plug Co., Flint, Mich.
Moto-M—Moto Meter Co., Inc., Long Island City, N. Y., and La Crosse, Wis.
SafeT—Safe-T-Stat Co., Brooklyn, N. Y.

CIGAR LIGHTER

Cas—Connecticut Automotive Epecialty Co., Bridgeport, Conn.
Cun—Cuno Engineering Corp., Meriden, Conn.
GRGR—Grand Rapids Metalcraft Corp., Grand Rapids, Mich.
Met—Metal Specialties Mfg. Co., Chicago.
†On some models.
*Closed models only.

SMOKING AND VANITY SETS

AWS—Art Metal Works, Newark, N. J.
Cas—Connecticut Automotive Specialty Co., Bridgeport, Conn.
Cun—Cuno Engineering Corp., Meriden, Conn.
El or Elg—Elgin Clock Co., Elgin, Ill.
Fis—Fisher Body Corp., Detroit.
GR—Grand Rapids Metalcraft Corp., Grand Rapids, Mich.
*On Studebaker line, ash receiver only.
Tern—Ternstedt.

BODY FINISH

Arco—John L. Armitage & Co., Newark, N. J.
Ditz—Ditzler Color Co., Detroit, Mich.
Duco—E. I. du Pont de Nemours & Co., Philadelphia.
Egypt—Egyptian Lacquer Co.
Gli—Glidden Co., Cleveland, O.
Mim—Mimax, Pittsburgh Plate Glass Co.
Mou—Mountain Varnish & Color Works, Toledo, O.
Mur—Murphy Varnish Co., Newark, N. J.
Shw—Sherwin-Williams Co., Cleveland, O.
Val—Valentine & Co., New York city.
VEP—V. E. P. Co., St. Louis, Mo.
§—Also Rinshed-Mason.
r—Also Ditz.
s—Also other makes.
Var's—Various.
x—Also Pittsburgh Plate Glass Co., Milwaukee, Wis.
y—Also Wilhelm Co., Reading, Pa.

STOP AND PARKING LIGHTS

Aga—Federal Pressed Steel Co., Chicago.
Bro—Brown & Green Ignition Sales Co., New York city.
Cor—Corcoran Co., Cincinnati, O.
D-R—Delco-Remy Corp., Anderson, Ind.
Gui—Guide Motor Lamp Mfg. Co., Cleveland, O.
Hal—Hall Lamp Co., Cincinnati, O.
Ind—Indiana Lamp Corp., Connersville, Ind.
Rea—Appleton Electric Co., Chicago.
Sto—Stover Signal Engineering Co., Racine, Wis.
Viet—Cincinnati Victor Co.
JB—John Brown Lamp Co.

WINDSHIELD WINGS

Ben—Benzer Corp., Brooklyn, N. Y.
JH—"Tonneau Shield Co., Inc., New York city.
John—Johnston Mfg. Co., Chicago.
Kok—Fulton Co., Milwaukee, Wis.
Per—Perfection Heater & Mfg. Co., Cleveland, O.
Del—Delco-Remy.

WIRE WHEELS

Moto W—Motor Wheel Corporation.
Day—Dayton Steel.
K-H—Kelsey-Hayes.
M W—Motor Wheel Corp.
*Buffalo—Wire Wheel Corporation of America, Buffalo, N. Y.
†On Durant lines Model 65s and 75 on cabriolet, roadsters and broughams.
††On Willys-Knight Foursome model only.
§De luxe equipment on 5 body types announced Aug. 1.

HEATER

Gla—Gladiator Mfg. Co.
Hil—Hill Products Corp., Chicago.
Kel—Kelch; made by Grand Rapids Metalcraft Corp., Grand Rapids, Mich.
Per—Eaton Axle & Spring Co., Cleveland, O.
Rov—Rovey Auto Heater Co., Chicago.
*Special equipment.

BUMPERS

Al—Alloy Steel Spring & Axle Co., Jackson, Mich.
Bad—Badger Mfg. Corp., Milwaukee.
Balc—Cincinnati Ball Crank Co., Cincinnati, O.
Ball—Automobile Equipment Mfg. Co., Chicago.
Bif—Biflex Corp., Waukegan, Wis.
Buck—See Cen.
Cen—Central Brass & Fixture Co., Springfield, O.
CG—CG Spring & Bumper Co., Detroit.
Eat—Eaton Axle & Spring Co., Cleveland.
Fed—Federal Pressed Steel Co., Chicago.
Ster—Sterling Spring Co., Cleveland, O.
Ste—Stewart-Warner Speedometer Corp., Chicago, Ill.
USE—U. S. E. Corp., Long Island City.

SHOCK ABSORBER

Bosch—American Bosch Magneto Corp., Springfield, Mass.
Gb or Gab—Gabriel Snubber Mfg. Co., Cleveland, O.
Har—Edward V. Hartford, Inc., Jersey City, N. J.
Has—Robert H. Hassler, Inc., Indianapolis, Ind.
Hx or Hex—Detroit Steel Products Co., Detroit, Mich.
H. or Hou—Houde Engineering Corp., Buffalo, N. Y.
Lov—Delco-Remy Corp., Anderson, Ind.
Mon—Monroe.
Wah—Wahl Co., Chicago.
Wat—John Warren Watson Co., Philadelphia.
Wee—American Chain Co., Bridgeport, Ct.
a—Front only.
b—Rear only.
c—Front and rear.
**Front. Lov. rear.

RADIATOR SHUTTERS

Oldsmobile own.

New Accessory Dealers

OHIO

Dayton, O., Jan. 15 (U. T. P. S.).—The Condit Auto Supply Company has been incorporated with a capital of 250 shares of no par value stock for the purpose of dealing in a full line of parts and accessories and to sell new and used automobiles.

Kenton, O., Jan. 15 (U. T. P. S.).—The Kenton United Service Stations, Inc., has been chartered with a capital of $15,000 to operate service stations, including the sale of parts and accessories.

VIRGINIA

Richmond, Va., Jan. 15 (U. T. P. S.).—L. E. Keppel, who for the past few years has been local branch manager of the Firestone Tire and Rubber Company at Richmond, Va., announces that he will soon open one of the finest tire stores and service stations in the city. During construction of the new building at Broad and Lombardy Streets, Mr. Keppel will have his temporary location at 819 West Broad St.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS OF

Make and Model	Capacity—tons	Chassis price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gearset	Location	No. Spds. for.	Rear Axle	Final Drive	Reduction in Low	Brakes, foot	Brakes, hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Acme 14	1	950	Con 8 T	6	4⅛x5¾	40.8	Ph	Til	Vac	Aut	M M	U	3	Sal 1595 E	St	18.73	Tr	R	120	2000	30x5	30x5
Acme 16	1	1015	Con H 8	4	3⅜x4½	18.3	Ph	Til	Vac	Aut	M M	U	3	Sal 1595 E	St	18.73	Tr	R	120	2100	30x5	30x5
Acme 24	1½	1450	Con 20 L	6	3⅜x4¾	18.2	Pw	Str	Vac	Aut	Br-L 31	U	3	Col 54010	St	28.8	R	R	136	3450	30x5	30x5
Acme 36	1½	2100	Con S 4	4	4¼x4½	28.9	Pb	Zen	Vac	Eis	Br-L 31	U	3	Tim 5620	St	30.8	R	R	136	3600	32x6	32x6
Acme 54	2½	2700	Con 8 R	6	3⅜x4½	27.3	Pw	Str	Vac	Eis	Br-L 35	U	4	Tim 65600	Wo	49.5	R	R	156	5100	S 34x5	S 34x10
Acme 56	2½	3230	Con S 4	4	4¼x4½	28.9	Pb	Str	Vac	Eis	Br-L 51	U	4	Tim 65600	Wo	41.5	R	R	165½	5100	S 34x5	S 34x10
Acme 74	3½	3800	Con 6 B	6	3⅜x5	33.7	Pw	Str	Vac	Eis	Br-L 60-4	C	4	Tim 65704	Wo	45.5	R	R	173	6250	S 36x5	S 36x10
Acme 76	3½	4640	Con L 4	4	4½x5½	32.4	Pw	Str	Vac	Eis	Br-L 60-4	C	4	Tim 65704	Wo	41.5	R	R	179⅜	6450	S 36x5	S 36x10
Acme 104	5–6¼	5230	Con 8 T	6	4⅛x5¾	40.8	Pw	Str	Vac	Aut	Br-L 60-7	C	7	Tim 67600	Wo	95.0	R	R	180	8850	S 36x6	S 40x14
Acme 106	5–6¼	5730	Con B 7	4	5 x6	40.0	Pw	Str	Vac	Eis	Br-L 60-7	C	7	Tim 67600	Wo	95.0	R	R	180	8850	S 36x6	S 40x14
Am. La France Chief	2–2½	2850	Buda D W 6	6	3¾x5	33.7	F P	Zen	Vac	Rem	Own	C	4	Tim	Wo	51.2	4	R	156	5600	32x6	32x6 D
**Am. La France W	3–4	3950	Own 2 R	4	4¼x6	28.9	P&S	Zen	Vac	A B	Own	C	4	Own	D R	47.4	D	R	160	7200	S 36x5	S 36x5 D
Am. La France S	4–4½	5200	Own 5 R	4	4¾x6	36.2	P&S	Zen	Vac	A B	Own	C	4	Own	Wo	54.4	D	R	165	8900	S 36x6	S 36x6 D
Am. La France V	5	5500	Own 5 R	4	4¾x6	36.2	P&S	Zen	Vac	A B	Own	C	4	Own	Wo	54.4	D	R	165	9800	S 36x6	S 40x6 D
Am. La France Z	6½	5750	Own 5 R	4	4¾x6	36.2	P&S	Zen	Vac	A B	Own	C	4	Own	Wo	63.5	D	R	165	10000	S 36x7	S 40x7 D
Am. La France U	7½	6000	Own 5 R	4	4¾x6	36.2	P&S	Zen	Vac	A B	Own	C	4	Own	—	63.5	D	R	165	10500	S 36x7	S 40x8 D
Am. La France 14 R	5	6000	Own 14 R	4	4¾x6	36.2	P&S	Zen	Vac	A B	Own	C	4	Own	D R	34.3	D	R	226	9100	40x8	40x8 D
Am. La France 16 R	5	6500	Own 16 R	6	4½x6	105	P&S	Zen	Vac	A B	Own	C	4	Own	D R	32.8	4	R	226	10400	40x8	40x8 D
Autocar A	1½	2700	Own A	4	4¼x5½	28.9	C S	Str	Vac	L-N	Br-L	U	4	Tim 5623 Px	Sp	28.7	4	4	142	3900	32x6	32x6
Autocar A	2	3000	Own A	4	4¼x5½	28.9	C S	Str	Vac	L-N	Br-L	U	4	Tim 63100	Wo	33.4	4	4	142	4050	S 34x4	S 34x7
†Autocar H	2½	3750	Own Y	4	4¼x5½	28.9	C S	Str	Gra	A B	Own Y	C	4	Own H	D R	56.3	R	R	114	5200	S 36x5	S 36x8
Autocar T	2½	4900	Own T	6	4¼x4¾	43.5	Pb	Str	Vac	A B	Own T	U	4	Own H	D R	40.2	R	D	177	6800	34x7	34x7 D
†Autocar H	3–3½	4100	Own Y	4	4¼x5½	28.9	C S	Str	Gra	A B	Own J	C	4	Own M	D R	63.6	R	R	114	6000	S 34x5	S 36x10
†Autocar H	3–3½	4350	Own W	6	4 x4¾	38.4	Pb	Str	Vac-Gra	A B	Own T	U	4	Own J	D R	55.2	R	R	114	6200	S 34x5	S 36x10
†Autocar M	5	4650	Own M	4	4½x5½	32.4	C S	Str	Gra	A B	Own B	C	4	Own M	D R	72.1	R	R	120	7200	S 34x6	S 36x12
Autocar M	5	4950	Own T	6	4¼x4¾	43.5	Pb	Str	Vac	A B	Own	C	4	Own M	D R	72.1	R	D	162	7300	S 34x6	S 36x12
Brockway Junior	1	1195	Wis C	4	3¾x5	22.5	Pb	Zen	Vac	Aut	Br-L 20	U	3	Col 36001	Sp	21.27	4W	Tr	130	3100	30x5	30x6
Brockway J F	1	1195	Wis F	6	3¼x4¼	25.4	Pb	Zen	Vac	Aut	Br-L 20	U	3	Col 36001	Sp	31.3	4Uh	Tr	137	3450	30x5	32x6
Brockway C J B F	1½	1475	Wis P	4	3¼x4¼	25.3	Pb	Zen	Vac	Eis	Br-L 20	U	3	Col 54030	Sp	31.3	4Uh	Tr	149	3650	30x5	32x6
Brockway E	1½	1765	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	L-N	Br-L 30	U	3	Col 55001	Sp	21.0	4W	Tr	139½	3650	32x6	32x6
Brockway E N	1½	1965	Wis N	6	3½x4¼	29.4	Pb	Zen	Vac	Aut	Br-L 30	U	3	Col 55001	Sp	20.9	4Uh	Tr	155	3840	32x6	32x6
Brockway S	2	2450	Wis S D	4	4 x5	25.6	Pb	Zen	Vac	L-N	Br-L 35	U	4	Wis 4610	D R	38.79	R	Tr	150¼	5100	S 34x4	S 34x8
Brockway S Y	2	2950	Wis Y	6	3⅜x5	27.3	Pb	Zen	Vac	L-N	Br-L 35	U	4	Wis 4610	D R	35.3	4Uh	Tr	151⅞	4950	32x6	34x7
Brockway K*	3	3300	Con K	4	4¼x5¼	27.2	Pw	Zen	Vac	Eis	Br-L 35	C	4	Tim 65600 D	Wo	41.5	R	R	154⅛	5855	S 36x5	S 36x10
Brockway K R	3	3625	Con L	4	4½x5½	32.4	Pw	Zen	Vac	Aut	Br-L 55	C	4	Tim 65700 S	Wo	36.38	R	R	160⅝	6290	S 36x5	S 36x10
Brockway K W	3	3950	Wis H	6	4 x5	38.2	Pb	Zen	Vac	L-N	Br-L 51	U	4	Wis 6731	D R	33.7	R	D	170	6920	34x7	D 34x7
Brockway R*	4	4200	Con L	4	4½x5½	32.4	Pw	Zen	Vac	Eis	Br-L 55	C	4	Tim 66600	Wo	46.8	R	R	164	7890	S 36x5	S 36x12
Brockway T	5–7	5200	Con B 7	4	5 x6	40.0	Pw	Zen	Vac	Eis	Br-L 60	C	4	Tim 68700	Wo	53.5	R	D	175	10065	S 36x6	S 40x14
Chevrolet	½	395	Own	6	3⅛x3¾	—	Pb	Car	P	Rem	Own	U	3	Own	Sp	13.87	4	R	107	1695	30x4.50	30x4.50
Chevrolet	1½	495	Own	6	3⅛x3¾	—	Pb	Car	P	Rem	Own	U	4	Own	Sp	33.47	4	R	124	2170	30x5	30x5
Day Elder M	1	1345	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Rem	Ful DU-10	U	3	Col-35000	B	23.89	R	R	131	3100	30x5	30x5
Day Elder G-6	1½	2050	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Rem	Ful DU-10	U	3	Tim 5620	B	29.30	R	R	144	3900	30x5	32x6
Day Elder H	2	2500	Buda WTU	4	3¾x5⅛	22.5	Pb	Zen	Vac	Rem	Ful KU-10	U	4	Tim 63702 D	Wo	30.64	R	R	144	4400	S 34x4	S 34x7
Day Elder H B-6	2	2500	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Rem	Ful KU-10	U	4	Tim 5620	B	27.32	R	R	144	4400	32x6	34x7
Day Elder I	2½	3300	Buda KBU	4	4 x5¼	25.6	Pb	Zen	Vac	Rem	Ful GU-12	U	4	Tim 65600 D	Wo	44.40	R	R	150	5700	S 36x4	S 36x8
Day Elder J-6	3	3900	Buda DW6	6	3¾x5	33.7	Pb	Zen	Vac	Rem	Ful GU-12	U	4	Tim 65600 D	Wo	37.20	R	R	156	6500	36x6	36x6 D
Day Elder K	4	4475	Bud Y B U	4	4½x6	32.4	Pb	Zen	Vac	Eis	Ful R	C	4	Tim 66600 D	Wo	49.60	R	R	162	8500	S 36x5	S 36x12
Day Elder L	5–6	5050	Bud B B U	4	5 x6½	40.0	Pb	Zen	Vac	Eis	Ful H	C	4	Tim 67700 D	Wo	64.60	R	R	162	10000	S 36x6	S 40x7 D
Diamond T 150	1	1095	Con 18 E	6	3⅜x4	27.3	Pb	Zen	Gra	Aut	Cov	U	3	Col	Sp	18.6	4	D	127½	....	30x5	30x5
Diamond T 302	2	1650	Her WXB	6	3¾x4½	33.7	Pb	Zen	Gra	Aut	Cov	U	4	Cla	Sp	33.1	4	D	157¾	....	32x6	32x6 D
Durant Com. Chassis	½	495	Con	4	3⅜x4¼	18.2	Pb	Til	Vac	Aut	Own	A	3	Own	Sp	16.16	4	4	107	1670	28x4.75	28x4.75
Fargo Packet	½	545	Own	4	3⅜x4⅛	21.03	Pb	Car	Vac	Rem	Own	U	3	Own	Sp	14.29	4	Tr	...	....	4.75x20	4.75x20
Fargo Clipper	¾	725	Own	6	3⅛x4¼	23.43	Pb	Str	Vac	Rem	Own	U	3	Own	Sp	14.29	4	Tr	...	....	5.50x18	5.50x18
*Ford A	1½	540	Own	4	3⅞x4¼	24.0	P&S	Zen	Gra	Own	Own	U	3	Own	Wo	*15.95	4	4	131½	2250	30x5	32x6
F. W. D.—H	2	3300	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	Eis	Cotta	C	4	Own	St	38.1	4	R	121	5300	34x7	34x7
F. W. D.—B	3	4200	Own	4	4¾x5½	36.1	Pb	Strom	Gra	Eis	Own	C	3	Own	St	35.6	4	R	124	6460	36x6 S	36x6 S
F. W. D.—B-5	3	4525	Own	4	4¾x5½	36.1	Pb	Strom	Gra	Eis	Own	C	5	Own	St	88.6	4	R	132	6800	36x6 S	36x6 S
F. W. D.—U 6	3½	4575	Wak	6	4 x4¾	38.6	Pb	Zen	Vac	A B	Own	C	5	Own	St	88.6	4	R	148	7200	36x6 S	36x6 S
F. W. D.—M	3½–5	5000	Wak	6	4¼x4¾	43.35	Pb	Zen	Gra	Eis	Own	C	5	Own	St	88.6	4	R	132	7600	36x8 S	36x10 S
F. W. D.—M F	3½–5	5000	Wak	6	4¼x4¾	43.35	Pb	Zen	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7775	36x8 S	36x10 S
F. W. D.—H T	2	3900	Wis S U	4	4 x5	25.6	Pb	Zen	Vac	Eis	Br-L	C	7	Own	St	84.7	4	R	120	6000	36x8	36x8
F. W. D.—B T	3	4742	Own	4	4¾x5½	36.1	Pb	Strom	Vac	Eis	Own	C	5	Own	St	101.0	4	R	133¾	7700	40x7 S	40x5 S D
F. W. D.—U 4	3	4575	Own	4	4¾x5½	36.1	Pb	Strom	Vac	Eis	Own	C	5	Own	St	88.6	4	R	148	7000	36x6 S	36x6 S
F. W. D.—X 6	6	6500	Wak	6	4¼x4¾	43.35	Pb	Zen	Vac	A B	Own	C	5	Own	St	88.6	4	4	170	9500	36x8	36x8
Graham Bros. Mer. Ex.	½	665	Dodge	6	3⅜x3⅞	27.3	Pb	Stw	Vac	N E	Own	U	3	Own	Sp	15.2	4	D	110	1965	29x5.00 B	29x5.00 B
Graham Bros. D E	¾	775	Dodge	6	3⅜x3⅞	27.3	Pb	Stw	Vac	N E	Own	U	3	Own	Sp	16.2	4	D	120	2510	31x5.25 B	31x5.25 B
Graham Bros. B E	1¼	995	Dodge	6	3⅜x3⅞	27.3	Pb	Stw	Vac	N E	Warner	U	4	Own	Sp	23.8	4	D	130	2920	30x5	30x5
Graham Bros. I E	1¼	1065	Dodge	6	3⅜x3⅞	27.3	Pb	Stw	Vac	N E	Warner	U	4	Own	Sp	23.8	4	D	140	2955	30x5	30x5
Graham Bros. M E	1¾	1345	Dodge	6	3⅜x3⅞	27.3	Pb	Stw	Vac	N E	Own	U	4	Own	Sp	36.8	4	D	150	3695	32x6	32x6
Graham Bros. L E	1¾	1415	Dodge	6	3⅜x3⅞	27.3	Pb	Stw	Vac	N E	Own	U	4	Own	Sp	36.8	4	D	165	3810	32x6	32x6
Graham Bros. E D	2	1445	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	41.4	4	D	114	3725	32x6	34x7
Graham Bros. J E	16 Pas	1890	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	36.8	4	D	165	4045	32x6	34x7
Graham Bros. Y E	21 Pas	1820	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	41.4	4	D	165	4205	32x6	34x7
Graham Bros. O E	2	1545	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	41.4	4	D	150	3930	32x6	34x7
Graham Bros. T E	2	1615	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	41.4	4	D	165	4070	32x6	34x7
Graham Bros. G E X	3	1745	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	46.3	4	D	135	4225	32x6	32x6 D
Graham Bros. R E X	3	1775	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	46.3	4	D	165	4520	32x6	32x6 D
Graham Bros. H E X	3	1845	Dodge	6	3⅜x4½	27.3	Pb	Zen	Vac	N E	Own	U	4	Own	Sp	46.3	4	D	185	4715	32x6	32x6 D
Gramm 263-N	1–1¼	1485	Lyc S	6	3¼x4½	25.3	Pb	Zen	Gra	Aut	Cov	U	3	Eat 1002	Sp	21.3	D	R	153	7100	S 36x5	S 36x10
Gramm 363-N	1½	1485	Lyc S	6	3¼x4½	25.3	Pb	Zen	Gra	Aut	Cov	U	3	Eat 1002	Sp	21.3	D	R	153	7100	S 36x5	S 36x10
Gramm 463-N	2	1885	Lyc S	6	3¼x4½	25.3	Pb	Zen	Gra	Aut	Cov	U	3	Eat 1504	Sp	25.3	D	R	153	7600	S 36x5	S 36x12
Gramm 564-N	2½	2940	Lyc T S	6	3⅞x5	36.2	Pb	Zen	Gra	Aut	Ful G U	U	3	Wis 6617	D R	25.4	D	R	153	7600	S 36x5	S 36x12
Gramm 35	3	4160	Her L	4	4½x5¾	32.4	Pb	Zen	Vac	Aut	Ful H	C	8	Wis 8800	D R	115.5	D	R	153	7600	S 36x5	S 36x12
Gramm 35	3	4160	Lyc T S	6	3⅞x5	36.2	Pw	Zen	Vac	Aut	Ful H	C	8	Wis 8800	D R	115.5	D	R	153	8700	S 36x6	S 36x14
Gramm 38—Low Bed	3	4160	Lyc T S	6	3⅞x5	36.2	Pw	Zen	Vac	Aut	Ful GU	C	8	Wis 67310	D R	33.1	D	R	133	3840	32x6	34x7
Gramm 45	4	4735	Her L	4	4½x5¾	32.4	Pb	Zen	Vac	Aut	Ful H	C	8	Wis 1450	D R	128.0	D	R	150	4800	32x6	32x6 D
Gramm 45	4	4735	Lyc T S	6	3⅞x5	36.2	Pw	Zen	Vac	Aut	Ful H	C	8	Wis 1450	D R	128.0	D	R	153	7100	S 36x5	S 36x10
Gramm 48—Low Bed	4	4735	Lyc T S	6	3⅞x5	36.2	Pw	Zen	Vac	Aut	Ful GU	U	4	Wis 1250	D R	34.2	D	R	133	3585	30x5	32x6
Gramm 60	5	5370	Her G	4	4¾x5¾	36.1	Pb	Zen	Vac	Aut	Ful H	C	8	Wis 1700	D R	133.4	D	R	153	9700	S 36x6	S 36x14
Gramm 60	5	5370	Lyc T S	6	3⅞x5	36.2	Pw	Zen	Vac	Aut	Ful GU	U	8	Wis 1700	D R	133.4	D	R	153	9700	S 36x4	S 36x14
GMC T 11	½	585	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	Rem	Own	U	3	Own	Sp	14.47	4	R	109⅝	1835	29x4.75 B	29x4.75 B
GMC T 19	1	745	Pontiac	6	3⅛x3⅞	26.3	Pb	Mar	P	Rem	Own	U	4	Own	Sp	37.3	4	R	126½	2525	30x5	30x5
*GMC T 30A	1½	1395	Buick Std	6	3⅛x4⅝	26.3	Pb	Mar	P	Rem	Own	U	4	Eat	Sp	28.6	4	D	136	3830	32x6.00 B	34x7
*GMC T 42A	2	1685	Buick Std	6	3⅛x4⅝	26.3	Pb	Mar	P	Rem	Own	U	4	Own	Sp	33.37	4	D	136	4270	32x6.75 B	36x8
†*GMC T 60A	3	2585	Buick Mst	6	3⅜x5	31.5	Pb	Mar	P	Rem	Own	U	4	Tim 65706 N	Wo	44.8	4	D	140	6285	36x5 S	36x10 S
†*GMC T 80A	4	2765	Buick Mst	6	3⅜x5	31.5	Pb	Mar	P	Rem	Own	U	4	Tim 65706 N	Wo	52.5	4	D	140	6455	36x5 S	36x12 S
*GMC K 102A	5	5220	Own 89	4	4½x6½	32.4	Pw	Mar	Vac	Eis	Own	C	7	Tim 67700	Wo	86.3	R	R	160	9295	36x6 S	40x14 S
*Hahn 24	1	1345	Her O	4	4 x5	25.6	Pb	Zen	Vac	Aut	Br-L 31	U	3	Eat 1002	Sp	—	R	R	138	3100	30x5	30x5
*Hahn 34	1½	2080	Her O	4	4 x5	25.6	Pb	Zen	Vac	Aut	Br-L 31	U	3	Eat 1504	Sp	—	R	R	150	3750	32x6	32x6
*Hahn 44	2	2250	Her O	4	4 x5	25.6	Pb	Zen	Vac	Aut	Br-L 31	U	3	Eat 1504	Sp	—	R	R	150	4100	32x6	34x7
Hahn 465	2	2740	Con 6 B	6	3¾x5	33.5	Pb	Zen	Vac	Aut	Br-L 35	U	4	Eat 1504	Sp	—	R	R	160½	4300	32x6	34x7
Hahn 54	2½	3300	Her L	4	4½x5¾	32.4	Pb	Zen	Vac	R B	Br-L 51	U	4	Tim 65000	Wo	—	R	R	144	5600	36x4 S	36x8 S
†Hahn 56	2½	3440	Con 6 B	6	3¾x5	33.75	Pb	Zen	Vac	Rem	Br-L 51	U	4	Eat 2252	Sp	—	R	D	160	5300	32x6	32x6 D
Hahn L	3	3600	Her L	4	4½x5¾	32.4	Pb	Zen	Vac	R-B	Br-L 51	U	4	Tim 65704	Sp	—	R	R	149	5900	36x5 S	36x5 S D
Hahn 76	3½	4790	Her Y X C	6	4⅜x4¾	45.9	Pb	Zen	Vac	L-N	Br-L 51	U	4	Tim 65704	Wo	—	R	R	196	6500	34x7	34x7 D
Hahn M	4	4250	Her G	4	4¾x5¾	36.5	Pb	Zen	Vac	R B	Br-L 60	C	4	Tim 66700	Wo	—	R	R	160	7600	36x5 S	36x12 S
Hahn R	5	5100	Her G	4	4¾x5¾	36.5	Pb	Zen	Vac	R B	Br-L 60	C	4	Tim 66700	Wo	—	R	R	162	8800	36x6 S	40x6 S D
Hahn N	6	5200	Her G	4	4¾x5¾	36.4	Pb	Zen	Vac	R B	Br-L 60	C	4	Tim 66700	Wo	—	R	R	162	9200	36x6 S	40x6 S D
Hahn K B L	25 Pas	4300	Her W X C	6	4 x4½	38.4	Pb	Zen	Vac	L-N	Br-L 51	U	4	Wis 67310	D R	—	R	R	204	5600	32x6	32x6 D
Hahn K B H	29 Pas	5000	Her Y X C	6	4⅜x4¾	45.9	Pb	Zen	Vac	L-N	Br-L 51	U	4	Wis 67310	D R	—	R	R	220	6400	34x7	34x7 D
Hahn L B	33 Pas	6000	Con 15 H	6	4½x5¾	48.6	Pb	Zen	Vac	L-N	Br-L 60	U	4	Wis 1251 K	D R	—	R	R	247	9000	38x7	38x7 D

* See special notations. † See special notations.

1928 COMMERCIAL CARS BUILT IN THE UNITED STATES

Make and Model	Capacity—tons	Chassis price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gearset	Location	No. Spds. for.	Rear Axle	Final Drive	Reduction in Low	Brakes, foot	Brakes, hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Indiana 200	1	1195	Wis F	6	3¼x4½	25.35	Pb	Zen	Vac	Aut	Br-L 20	U	3	Col 36000	Sp	20.71	4	Tr	137	3400	30x5	32x6
Indiana 300	1½	1475	Wis F	6	3¼x5¼	25.35	Pb	Zen	Vac	Aut	Br-L 20	U	3	Col 54030	Sp	21.26	4	Tr	149	3650	30x5	32x6
Indiana 111 X	2	1850	Her Ox	4	4 x5	25.6	Pb	Str	Vac	Eis	Br-L 35	U	4	Cla B 504	Sp	36.60	R	Tr	120	3830	32x6	32x6 D
Indiana 400	2	2495	Wisc Y	6	3⅜x5	27.34	Pb	Str	Vac	Aut	Br-L 35	U	4	Cla B 506	Sp	30.33	4	Tr	157	4800	32x6	34x7
Indiana 115 A	2½	2740	Her Ox	4	4 x5	25.6	Pb	Str	Vac	Eis	Br-L 35	U	4	Cla B 720	Sp	42.80	R	Tr	132	5000	32x6	34x7 D
Indiana 615 A	2½	3070	Wis Y	6	3⅜x5	27.34	Pb	Str	Vac	Eis	Br-L 35	U	4	Cla B 720	Sp	30.33	R	Tr	136	5190	32x6	34x7 D
Indiana 126	3	3495	Her L	4	4½x5¾	32.4	Pb	Str	Vac	Eis	Br-L 557	C	7	Tim 65074	Sp Wo	80.7	R	Js	162½	7400	36x5	36x10 S
Indiana 127	3	3190	Her K	4	4¼x5¾	28.9	Pb	Str	Vac	Eis	Br-L 51	U	5	Cla B 720	Sp	41.72	R	R	141	6490	32x6	34x7 D
Indiana 626	3	4185	Wis H	6	4 x5	38.40	Pb	Str	Vac	Eis	Br-L 55	C	7	Tim 65074	Sp Wo	80.7	R	Js	168½	7625	36x6 S	36x10 S
Indiana 627	3	3725	Wis H	6	4 x5	38.40	Pb	Str	Vac	Aut	Br-L 55	U	4	Cla B 720	Sp	42.80	R	R	162½	6500	36x5 S	36x10 S
Indiana 628	3	4355	Wis H	6	4 x5	38.40	Pb	Str	Vac	Aut	Br-L 55	U	4	Cla B 720	Sp	37.45	R	R	216¾	6585	34x7	34x7 D
Indiana 127 A	3	3375	Her K	4	4¼x5¾	28.9	Pb	Str	Vac	Eis	Br-L 51	U	5	Cla B 720	Sp	41.72	R	R	141	6800	32x6	34x7 D
Indiana 627 A	3	3690	Wisc H	6	4 x5	38.40	Pb	Str	Vac	Eis	Br-L 51	U	5	Cla B 70	Sp	41.72	R	R	147	6800	32x6	34x7 D
Indiana 138	4	4380	Her L	4	4½x5¾	32.4	Pb	Str	Vac	Eis	Br-L 60	C	7	Tim 66700 D	Wo	83.1	R	R	162½	7850	36x5	36x12 S
Indiana 638	4	4955	Wisc H	6	4 x5	38.4	Pb	Str	Vac	Eis	Br-L 60	C	7	Tim 66700 D	Wo	83.1	R	R	168½	8100	36x5	36x12 S
Indiana 41	5	5460	Her G	4	4¾x5¾	36.1	Pb	Str	Vac	Eis	Br-L 60	C	7	Tim 66700 D	Wo	95.0	R	R	172	9600	36x6	40x12 S
Int. Harvester Sp. Del.	¾	695	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	Rem	Mec	U	3	Eat 502 R	Sp	15.1	4	4	124	2200	30x5.25	30x5.25 P
Int. Harv. 6 Spd. Spec.	1	795	Wak X A	4	3½x4½	19.6	Pb	Zen	Vac	Rem	Mec	U	3	Eat 1124	Sp	*52.6	4	4	124	2430	30x5	30x5 P
Int. Harvester S-24	1¼	1135	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	Rem	Own	U	3	Eat 1002	Sp	21.3	4	4	130	3200	32x4½	32x4½ P
Int. Harvester S-26	1¼	1285	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	Rem	Own	U	3	Eat 1002	Sp	21.3	4	4	130	3250	32x4½	32x4½ P
Int. Harvester SF-34	1½	1425	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	Rem	Own	U	3	Eat 1502	Sp	22.6	4	4	140	3520	30x5	30x5 P
Int. Harvester SF-36	1½	1575	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	Rem	Own	U	3	Eat 1502	Sp	22.6	4	4	140	3570	30x5	30x5 P
Int. Harvester SL-34	1½	1525	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	Rem	Own	U	3	Eat 1502	Sp	22.6	4	4	160	3595	30x5	30x5 P
Int. Harvester SL-36	1½	1675	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	Rem	Own	U	3	Eat 1502	Sp	22.6	4	4	160	3645	30x5	30x5 P
Int. Harvester SD-44	2	1565	Lyc C T	4	3¾x5	22.5	Pw	Zen	Vac	A B	Own	U	4	Eat 2002	Sp	40.6	4	4	117	3700	30x5	32x6 P
Int. Harvester SD-46	2	1715	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	A B	Own	U	4	Eat 2002	Sp	40.6	4	4	117	3750	30x5	32x6 P
Int. Harvester SF-46	2	1925	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	Rem	Own	U	4	Eat 2002	Sp	40.6	4	4	140	4000	32x6	34x7
Int. Harvester 54-C	2½	3200	Own	4	4¼x5	28.9	C S	Zen	Gra	R B	Own	U	4	Own A M 428	Ch	51.8	R	D	140	6400	36x5	36x10
Int. Harvester 54	2½	3550	Own	4	4¼x5	28.9	C S	Zen	Gra	R B	Own	U	4	Eat 54 55000	D R	53.7	R	D	140	6345	36x5	36x8
Int. Harvester 74-C	3½	4550	Own	4	4¼x5	28.9	C S	Zen	Gra	R B	Own	U	4	Own A M 427	Ch	*86.0	R	D	154	8715	36x6	40x12
Int. Harvester 74	3½	4550	Own	4	4¼x5	28.9	C S	Zen	Gra	R B	Own	U	4	Eat 74 100000	D R	61.6	R	D	160	8175	36x6	40x12
Int. Harvester 104-C	5	4800	Own	4	4¼x5	28.9	C S	Zen	Gra	R B	Own	U	4	Own A M 427	Ch	86.0	R	D	154	8890	36x6	40x14
Int. Harvester HS-54	2½	3850	H-S 151	4	4¼x5½	28.9	Pb	Zen	Vac	R B	Own	U	5	Eat 54 6500	D R	60.5	4	4	*148	7780	36x5	36x8
Int. Harvester HS-54-C	2½	3550	do 151	4	4¼x5½	28.9	Pb	Zen	Vac	R B	Own	U	5	Own A M 428	Ch	62.8	4	4	*148	7935	36x5	36x10
Int. Harvester HS-74	3½	4850	do 152	4	4¾x5½	36.1	Pb	Zen	Vac	R B	Own	U	5	Eat 74 100000	D R	70.5	4	4	*160	9690	36x6	40x12
Int. Harvester HS-74-C	3½	4850	do 152	4	4¾x5½	36.1	Pb	Zen	Vac	R B	Own	U	5	Own A M 427	Ch	79.1	4	4	*160	10290	36x6	40x12
Int. Harv'st'r HS-104-C	5	5500	do 152	4	4¾x5½	36.1	Pb	Zen	Vac	R B	Own	U	5	Eat 74 100000	D R	90.5	4	4	*160	10455	36x6	40x12
*Larrabee 20	1	1595	Con 16 C	6	3⅜x4⅝	27.34	Pb	Zen	Gra	Rem	Br-L	U	3	Cal	Sp	5.13	4	D	142	4170	30x5	30x5
*Larrabee 30	1½	1875	Con 16 C	6	3⅜x4⅝	27.34	Pb	Zen	Gra	Rem	Br-L	U	3	Cal	Sp	5.13	4	D	161	4550	32x6	32x6
*Larrabee 40	2	2965	Con 16 R	6	4 x4¼	38.4	Pb	Zen	Gra	Rem	Br-L	U	4	Wisc	D R	5.35	4	D	176	5950	32x6	32x6 D
*Larrabee 50	2½	3285	Con 16 R	6	4 x4¼	38.4	Pb	Zen	Gra	Rem	Br-L	U	4	Wisc	D R	5.35	4	D	183	6030	32x6	32x6 D
*Larrabee 60	3	3980	Con 18 R	6	4 x4½	38.4	Pb	Zen	Gra	Rem	Br-L	U	4	Tim	Wo	5.35	4	D	195	7140	34x7	34x7 D
*Larrabee 70	3½	4600	Con 20 R	6	4⅛x4¾	—	Pb	Zen	Gra	Rem	Br-L	A	7	Tim	Wo	9.5	4	D	205	7740	34x7	34x7 D
Mack A B	1½	3000	Own	4	4 x5	25.6	S P	Str	Gra	Spf	Own	U	4	Own	Ch	34.44	D	R	146½	5350	36x4	36x3½ D
Mack A B	1½	3450	Own	4	4 x5	25.6	S P	Str	Gra	Spf	Own	U	4	Own	D R	36.8	R	D	or	5650	36x4	36x6
Mack A B	2	3300	Own	4	4¼x5	28.9	S P	Str	Gra	Spf	Own	U	4	Own	Ch	34.44	D	R	164½	5450	36x4	36x3½ D
Mack A B	2	3750	Own	4	4¼x5	28.9	S P	Str	Gra	Spf	Own	U	4	Own	D R	36.38	R	D	on all	5800	36x4	36x6
Mack A B	2½	3400	Own	4	4¼x5	28.9	S P	Str	Gra	Spf	Own	U	4	Own	Ch	43.02	D	R	these	5500	36x4	36x4 D
Mack A B	3	3850	Own	4	4¼x5	28.9	S P	Str	Gra	Spf	Own	Js	4	Own	D R	44.9	R	D	models	5950	36x4	36x8
Mack A C	3½	4950	Own	4	5 x6	40.0	S P	Str	Gra	Spf	Own	Js	4	Own	Ch	48.37	Js	R	156	9100	36x5	40x5, 40x10 S
Mack A C	5	5500	Own	4	5 x6	40.0	S P	Str	Gra	Spf	Own	Js	4	Own	Ch	53.31	Js	R	168 or	9550	36x6	40x6 D
Mack A C	7½	6000	Own	4	5 x6	40.0	S P	Str	Gra	Spf	Br-L 35	U	4	Own	Ch	67.38	Js	R	180	10050	36x7	40x7 D
Mack B B	1½	3500	Own	4	4¼x5	28.9	P&S	Str	E	N E	Own	U	4	Own	S R	*23.81	4	D	165½	6450	32x6	32x6 D
*Mack A B	1½–2	3000	Own	4	4¼x5	28.9	P&S	Str	Gra	Spl	Own	U	4	Own	Cb	*34.4	R	D	146½	5400	36x4	36x6 S
Mack A B	2½–3	3400	Own	4	4¼x5	28.9	P&S	Str	Gra	Spl	Own	U	4	Own	Ch	*43.9	R	D	146½	5650	36x4	36x8 S
Mack B J	3–4	5800	Own	6	4¼x5	43.35	P&S	Str	E	N E	Own	C	4	Own	D R	*22.40	4	D	168½	8950	36x8	36x8 D
Mack A K	3½–5	4850	Own	4	5 x6	40.00	P&S	Str	Gra	Spl	Own	C	4	Own	D R	*45.3	4	D	162	8900	36x5	36x5 D
Mack A C	3½–5	4950	Own	4	5 x6	40.00	P&S	Str	Gra	Spl	Own	J	4	Own	Ch	*48.4	Js	R	156	9100	36x5	40x10 S
Mack A C	5½–7	5500	Own	4	5 x6	40.00	P&S	Str	Gra	Spl	Own	J	4	Own	Ch	*57.41	Js	R	156	9550	36x6	40x12 S
Mack A C	7½	6000	Own	4	5 x6	40.00	P&S	Str	Gra	Spl	Own	J	4	Own	Ch	*67.1	Js	R	156	10050	36x7	40x14 S
Mack A B Tractor	5–6	3400	Own	4	4¼x5	28.9	P&S	Str	Gra	Spl	Own	U	4	Own	Ch	*51.1	D	R	122½	5700	36x4	36x8 S
Mack A C Tractor	7–10	4950	Own	4	5 x6	40.00	P&S	Str	Gra	Spl	Own	J	4	Own	Ch	*58.00	Js	R	128	9150	34x5	36x5 D
Mack A C Tractor	11–14	5500	Own	4	5 x6	40.00	P&S	Str	Gra	Spl	Own	J	4	Own	Ch	*62.2	Js	R	128	9600	34x6	36x6 D
Mack A C Tractor	15 Pas	6000	Own	4	5 x6	40.00	P&S	Str	Gra	Spl	Own	J	4	Own	Ch	*73.5	Js	R	128	9950	34x7	36x7 D
Mack A B Bus C T	15 Pas	4650	Own	4	4¼x5	28.9	P&S	Str	Vac	N E	Own	U	4	Own	D R	—	R	D	196	7200	Opt.	Opt.
Mack A B Bus C T	29 Pas	4750	Own	4	4¼x5	28.9	P&S	Str	Vac	N E	Own	U	4	Own	D R	—	R	D	225¼	7300	Opt.	Opt.
**†Mack A B Bus	25 Pas	6195	Own	4	4¼x5	28.9	P&S	Str	Vac	N E	None		—	Own	D R	—	—	—	196	8545	34x7	34x7 D
**†Mack A B Bus	29 Pas	6295	Own	4	4¼x5	28.9	P&S	Str	Vac	N E	None		—	Own	D R	—	—	—	225¼	8545	34x7	34x7 D
Mack A B Parlor Car	25 Pas	4750	Own	4	4¼x5	28.9	P&S	Str	Vac	N E	Own	U	4	Own	D R	—	R	D	230½	7340	Opt.	Opt.
Mack A L Bus C T	29 Pas	6500	Own	6	4¼x5	43.35	P&S	Str	E	N E	Own	C	4	Own	D R	—	4	D	233	9000	34x7	34x7 D
Mack A L	29 Pas	6500	Own	6	4¼x5	43.35	P&S	Str	E	N E	Own	C	4	Own	D R	—	4	D	233	9000	34x7	34x7 D
**†Mack A L	29 Pas	8436	Own	6	4¼x5	43.35	P&S	Str	E	N E	None		—	Own	D R	—	—	—	233	11520	34x7	34x7 D
Moreland R R-6	1½–2	1850	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	P	Aut	Br-L 35	U	4	Tim 5622 H	St	32.95	4	D	158½	3800	32x6	32x6
Moreland B-6	2–2½	2200	Con 16-C	6	3⅜x4⅝	27.3	Pb	Zen	P	Aut	Br-L 35	U	4	Tim 63721 H	Wo	34.8	4	D	158½	4200	36x4 S	36x6 S
Moreland E-6	2½–3	3700	Her W X C	6	4 x4½	38.4	Pb	Zen	P	Aut	Br-L 51	U	4	Tim 65000 H	Wo	34.8	4	D	178	6000	34x7	34x7 D
Moreland Ex. 6	3½–4	3750	Her W X C	6	4 x4½	38.4	Pb	Zen	P	Aut	Br-L 51	U	5	Tim 65704 S	Wo	46.0	4	D	178	6500	36x5 S	36x10 S
Moreland E D-6	5	4700	Her W X C	6	4 x4½	38.4	Pb	Zen	P	Aut	Br-L 51	U	5	Tim 65000	Wo	46.0	4	D	196	8500	36x8 S	36x8 S
Moreland H-6	5	4990	Her Y X C	6	4⅝x4¾	45.9	Pb	Zen	P	Aut	Br-L 55	C	7	Tim 66702 W	Wo	82.3	4	D	192	8000	36x6 S	36x12 S
Moreland H D S-6	6	5725	Her Y X C	6	4⅝x4¾	45.9	Pb	Zen	P	Aut	Br-L 60	C	7	Own	Wo	80.6	4	D	192	9500	36x6 S	36x8
Moreland S D-5	10	6950	Con 16-T	6	4¼x5¼	43.3	Pb	Strom	P	Aut	Br-L 60	C	7	Own	Wo	88.6	4	D	192	10800	36x7 S	36x10 S
Moreland T T-6	10	8600	Con 15-H	6	4½x5¾	48.6	Pb	Strom	P	Aut	Br-L 70	C	7	Own	Wo	97.13	4	D	221	11500	36x7 S	36x10
*Fleet Arrow F A-1	1½–2	2450	Own F A	6	3½x5	29.5	Pb	Str	A P	Rem	Own	U	3	Own	Sp	33.3	4	Tr	140	3950	32x6.00	34x7
*Pierce-Arrow F A-1	1½–2	2600	Own	6	3½x5	29.4	Pw	Str	P F	Del	Own	U	3	Tim	St	63.7	4	Tr	140	4155	32x6	32x6 D
*Pierce-Arrow X A-1	2	3500	Own	4	4 x5½	25.6	Pw	Str	Pre	Del	Own	C	4	Own	Wo	44.2	D	R	150	6500	36x4	36x5 D S
*Pierce-Arrow X B-1	3	3750	Own	4	4 x5½	25.6	Pw	Str	Pre	Del	Own	C	4	Own	Wo	48.1	D	R	150	6700	36x5	36x5 D S
*Pierce-Arrow H B-1	5	4500	Own	4	4 x5½	25.6	Pw	Str	Pre	Del	Own	C	7	Own	Wo	95.0	D	R	156	8100	36x5	36x6 D S
*†Pierce-Arrow W C-1	4	5100	Own	4	4½x6¾	32.4	Pw	Str	Pre	Del	Own	C	4	Own	Wo	41.5	D	R	162	8490	36x5	36x6 D S
*†Pierce-Arrow R D-1	5	5400	Own	4	4½x6¾	32.4	Pw	Str	Pre	Del	Own	C	4	Own	Wo	40.5	D	R	162	8750	36x6	36x7 D S
*†Pierce-Arrow R F-1	7½	5600	Own	4	4½x6¾	32.4	Pw	Str	Pre	Del	Own	C	4	Own	Wo	51.9	D	R	168	9450	36x6	40x8 D S
†Pierce-Arrow R F-T	7½	5600	Own	4	4½x6¾	32.4	Pw	Str	Pre	Del	Own	C	4	Own	Wo	51.9	D	R	132	9900	36x6	36x8 D S
Pierce-Arrow Y	3	5850	Own	6	4 x5½	38.4	Pw	Str	Pre	Del	Own	C	4	Own	Wo	32.1	D	R	196	6300	36x6	36x6 D
Pierce-Arrow Z	3	6000	Own	6	4 x5½	38.4	Pw	Str	Pre	Del	Own	C	4	Own	Wo	32.1	D	R	220	6700	36x6	36x6 D
*Republic 75-4	1¼	1395	Lyc C T	4	3¾x5	22.5	Pb	Zen	Vac	Aut	Ful	U	3	Eat	St	21.3	R	R	124	3000	30x5	30x5
*Republic 76-4	1½	1575	Lyc C T	4	3¾x5	22.5	Pb	Zen	Vac	Aut	Ful	U	3	Eat	St	21.3	R	R	146	3350	30x5	30x5
Republic 85	2	2095	Lyc C 4	4	4 x5	25.6	Pb	Zen	Vac	Aut	Ful	U	3	Eat	St	25.5	R	D	155	4250	30x5	30x5 D
Republic 88	2	1945	Lyc C 4	4	4 x5	25.6	Pb	Zen	Vac	Aut	Ful	U	3	Eat	St	26.5	R	R	110	3350	30x5	30x5 D
Republic 50-5	2	2095	Lyc 4 S L	6	3¼x4½	25.3	Pb	Zen	Vac	Aut	Ful	U	3	Eat	St	25.5	R	D	143	4100	30x5	30x5 D
Republic 58	2½	2495	Lyc C 4	4	4 x5	25.6	Pb	Zen	Vac	Aut	Ful	U	3	Eat	St	27.5	R	D	122	4300	32x6	32x6 D
††Republic 60-61	2½	2985	Lyc T F	6	3⅝x5	31.5	Pb	Zen	Vac	Aut	Ful	U	3	Eat	St	22.0	4	D	151	7000	32x6	32x6 D
Republic 65	3	3695	Lyc T S	6	3⅞x5	36.2	Pb	Zen	Vac	Aut	Ful	U	4	Eat	D R	—	—	—	179	....	—	—
Republic15W-15W	2	2545	Wak V	4	4 x5	26.2	Pw	Zen	Vac	A B	Ful	U	3	Eat	Int	28.8	R	D	153	4200	34x4 S	34x7 S
Republic 25W-25WRB	3	3390	Wak C U	4	4⅝x5¾	30.6	Pb	Zen	Vac	A B	Ful	U	4	Eat	Int	40.3	R	D	124	5800	36x5 S	36x10 S
Republic 30W-30WB	4½	4185	Wak C U	4	4⅝x5¾	30.6	Pb	Zen	Vac	A B	Ful	U	4	Eat	Int	49.2	R	D	156	6700	36x5 S	36x12 S
Reo Speedwagon Jr.	½	895	Con	6	3⅜x5	27.3	Pb	Sch	Vac	N E	W-G	U	3	Sal	Sp	14.63	4	Tr	115	....	28x5.25 B	28x5.25 B
*Reo Speedwag'n Ton'r	1	995	Con	6	3⅜x4	27.3	Pb	Sch	Vac	N E	W-G	U	3	Own	Sp	18.478	4	Tr	123	....	30x5	30x5
Reo General Utility	1½	1345	Own	6	3⅛x5	24.3	P&S	Sch	Vac	N E	Own	U	3	Own	Sp	22.96	4	Tr	143	....	32x6	32x6
Reo St'd Speedwagon	1½	1245	Own	6	3⅛x5	24.3	P&S	Sch	Vac	N E	Own	U	3	Own	Sp	22.96	4	Tr	133	....	32x6	32x6
Reo Mast. Speedwagon	2	1545	Own	6	3⅛x5	24.3	P&S	Sch	Vac	N E	W-G	U	4	Own	Sp	37.62	4	Tr	148	....	30x5	30x5 D
Reo H. D. Speedwagon	3	1985	Own	6	3⅛x5	24.3	P&S	Sch	Vac	N E	W-G	U	4	Own	Sp	41.05	4	Tr	159	....	32x6	32x6 D

* See special notations. † See special notations.

(KEY TO ABBREVIATIONS AND TABLE CONTINUED ON NEXT PAGE)

Major Specifications and Mechanical Details of 1928 Commercial Car Built in the United States

(CONTINUED FROM PRECEDING PAGE)

Make and Model	Capacity—tons	Chassis price	Engine	No. of Cyl.	Bore and Stroke	Tax H. P.	Oil System	Carburetor	Fuel Feed	Ignit. System	Gearset	Location	No. Spds. for.	Rear Axle	Final Drive	Reduction in Low	Brakes, foot	Brakes, hand	Standard Wheel Base	Chassis Weight	Standard Tire Sizes Front	Rear
Rugby Lt. Dely Panel	½	*775	Con	4	3⅜x4¼	18.2	Pb	Til	Vac	Aut	Own	A	3	Own	Sp	14.79	4	4	107	2325f	28x4.75	28x4.75
Rugby Fast Mail Panel	¾	*975	Con	6	2⅞x4¾	19.8	Pb	Til	Vac	Aut	Own	U	3	Own	Sp	14.79	4	4	110	2600f	29x5	29x5
Rugby Express	1¼	975	Con	6	2¾x4¾	18.2	Pb	Til	Vac	Aut	Own	A	4	Own	Sp	22.4	4	4	128	2530	30x5	30x5
Rugby Mod X	1¼	680	Con	4	3⅜x4¼	18.2	Pb	Til	Vac	Aut	Own	A	3	Own	Sp	24.16	4	4	124	2175	29x5	30x5
Ruggles 18	1¼	1388	Lyc C T	4	3¾x5	22.5	Pb	Zen	Vac	Rem	Br-L 20B	U	3	Col 3400	St	15.7	R	R	134	3000	30x5	30x5
Ruggles 18	1¼	1495	Lyc S G	6	3¼x4½	25.3	Pb	Zen	Vac	Rem	Br-L 20B	U	3	Col 3400	St	15.7	R	R	134	3000	30x5	30x5
Ruggles 22	1½	2045	Her Ox	4	4 x5	25.6	Pb	Zen	Gra	Rem	Br-L 31	U	3	Col 5300	St	24.5	R	R	152	3600	32x6	32x6
Ruggles 30	1½	2047	Lyc 4 S G	6	3¼x4½	25.3	Pb	Str	Vac	Rem	Br-L 31	U	3	Eat 1504	St	29.7	R	R	160	4250	32x6	32x6 D
Ruggles 22 H	2	2345	Her Ox	4	4 x5	25.6	Pb	Zen	Gra	Rem	Br-L 35	U	4	Wis 4600	D R	29.4	R	R	152	3900	32x6	34x7
Ruggles 25	2	2662	Lyc T F	6	3⅜x5	31.5	Pb	Zen	Vac	Rem	Br-L 35	U	4	Wis 4600	D R	29.4	R	R	158	4000	32x6	34x7
Ruggles 42	3½	2565	Her Ox	4	4 x5	25.6	Pb	Zen	Gra	A B	Br-L 35	U	4	Wis 6600 B	D R	37.4	R	R	152	4300	34x4 S	34x8 S
Ruggles 45	3	3195	Her Ox	4	4 x5	25.6	Pb	Zen	Gra	A B	Br-L 35	U	4	Wis 8800 B	D R	42.0	R	R	148	5200	36x5 S	36x10 S
Selden 17	1½	1600	Con 18 E	6	3⅜x4	27.0	Pb	Zen	Vac	Aut	W-G	U	3	Cla	St	Opt.	4	D	142	3750	30x5	30x5
Selden 37 C	2½	2100	Con 15 C	6	3⅜x4⅝	27.0	Pw	Str	Vac	Aut	Br-L	U	4	Cla 506	St	Opt.	4	D	151	4600	30x5	30x5 D
Selden 47	3-4	3600	Con 6 B	6	3¾x5	33.75	Pw	Str	Vac	Aut	Br-L	U	4	Cla 720	St	Opt.	R	R	165	5550	32x6	32x6 D
Selden 77	5-7	5800	Con 20 R	6	4½x5¼	40.84	Pw	Str	Vac	Aut	Br-L	A	7	Wis	D R	Opt.	R	R	211	8850	36x8	36x6 S D
Selden 47 X	4	3795	Con 6 B	6	3¾x5	33.75	Pw	Str	Vac	Aut	Br-L	U	4	Wis	D R	Opt.	R	R	130	5760	34x7	34x7 D
Selden 22	21 Pas	2750	Con 15 C	6	3⅜x4⅝	27.0	Pw	Str	Vac	N E	Br-L	U	4	Cla 506	St	Opt.	R	R	184	4400	32x6	32x6
Selden 42	25 Pas	3900	Con 6 B	6	3¾x5	33.75	Pw	Str	Vac	N E	Br-L	U	4	Cla 720	St	Opt.	R	R	210	5890	32x6	32x6 D
Selden B 47 X	4	3795	Con 6 B	6	3¾x5	33.7	Pw	Str	Vac	Aut	Br-L	U	4	Cla 720	St	Opt.	R	R	143	6260	34x7	34x7 D
Selden B 22 C	18	2125	Con 15 C	6	3⅜x4⅝	—	Pw	Str	Vac	Aut	Br-L	U	4	Cla 506	St	Opt.	4	D	184	4800	30x5	30x3 D
Selden B 42	25	3900	Con 6 B	6	3¾x5	—	Pw	Str	Vac	Aut	Br-L	U	4	Cla 720	St	Opt.	R	R	210	1800	32x6	32x6 D
Standard 2½ K	2½-3½	3200	Con K-4	4	4⅛x5¼	27.2	Pb	Str	Vac	Aut	Br-L 35	A	4	Tim 65600	Sp Wo	34.8	R	D	147	5400	36x5 S	36x8 S
Standard 3½ K	3½-5	4350	Con L-4	4	4½x5½	32.4	Pb	Str	Vac	Aut	Br-L 55	A	7	Tim 66700	Sp Wo	83.0	R	D	160	7485	36x5 S	36x12 S
Standard 5 K	5-7	5250	Con B-5	4	4¾x6	36.1	Pb	Str	Vac	Aut	Br-L 60	A	7	Tim 68700	Sp Wo	83.6	R	D	164	8700	36x6 S	40x14 S
*Stewart Buddy 21	¾	895	Lyc W S G	6	2⅞x4¾	19.8	Pb	Str	Gra	Rem	W-G	U	3	Sal	Sp	30.0	R	D	118	2350	30x5.50	30x5.50
*Stewart Buddy 21 X	1	985	Lyc W S G*	6	2⅞x4¾	19.8	Pb	Str	Vac	Rem	W-G	U	3	Sal	Sp	30.0	4	D	128	2773	30x5	30x5
*Stewart 16	1¼	1295	Lyc C T	4	3¾x5	22.5	Pb	Str	Vac	Rem	Ful	U	3	Cla	Sp	24.0	4	D	130	3050	32x6	32x6
*Stewart 16 X	1¼	1295	Lyc 4 S L	6	3¼x4½	25.3	Pw	Str	Vac	Rem	Ful	U	3	Cla	Sp	24.0	4	D	130	3148	32x6	32x6
*Stewart 24	1½	1645	Lyc C 4 W	4	4 x5	25.6	Pb	Str	Vac	Rem	Ful	U	4	Cla	Sp	27.3	4	D	145	3740	30x5	30x5 D
*Stewart 24 X	1½	1645	Lyc C 4 W	6	3¼x4½	25.3	Pw	Str	Vac	Rem	Ful	U	4	Cla	Sp	27.3	4	D	145	3838	30x5	30x5 D
*Stewart 25	2	1975	Lyc C 4 W	4	4 x5	25.6	Pb	Str	Vac	Rem	Ful	U	4	Tim	Sp	27.3	4	D	145	3960	32x6	34x7
*Stewart 25 X	2	1975	Lyc 4 S L	6	3¼x4½	25.3	Pw	Str	Vac	Rem	Ful	U	4	Tim	Sp	27.3	4	D	145	4058	32x6	34x7
*Stewart 25 W	2	2095	Lyc C 4 W	4	4 x5	25.6	Pb	Strom	Vac	Remy	Ful	U	4	Tim	Sp	29.0	4	D	146	4100	32x6	34x7
*Stewart 25 X W	2	2095	Lyc 4 S L	4	3¼x4½	26.3	Pw	Str	Vac	Rem	Ful	U	12	Tim	Wo	29.0	4	D	145	4158	32x6	34x7
*Stewart 18 X	2½	2690	Lyc T	6	3⅝x5	31.5	Pw	Str	Vac	Rem	Ful	U	4	Tim	Wo	29.0	4	D	165	5000	32x6	32x6 D
*Stewart 19 X	3	3490	Lyc F	6	3⅞x5	36.2	Pw	Str	Vac	Rem	Ful	U	4	Tim	Wo	34.8	4	D	165	6383	36x5	36x10
*Stewart 22 X	4	4200	Lyc F	6	3⅞x5	36.2	Pw	Str	Vac	Rem	Ful	U	4	Tim	Wo	29.0	4	D	165	4860	32x6	32x6 D
Studebaker G E-B	⅜	925	Own	6	3⅜x4½	27.3	P C	Ball	P	Rem	Own	U	3	Own	S B	14.9	4	Js	113	2590	32x6 B	32x6 B
Studebaker G D-N	1	1075	Own	6	3⅜x4½	27.3	P C	Str	P	Rem	Own	U	3	Own	Sp	13.7	4	Js	140	2860	30x5	30x5
Studebaker "75" Jr.	2½	2410	Own	6	3⅞x5	36.0	P C	Ball	P	Rem	Ful	U	3	Eat	Sp	19.8	4	Js	158	4504	32x6.75 B	32x6.75 B
Studebaker "76" Spec.	3	2775	Own	6	3⅞x5	36.0	P C	Str	P	Rem	Ful	U	3	Eat	Sp	19.8	4	Js	184	4765	32x6.75 B	32x6.75 B
Studebaker "75" H. D.	3½	3275	Own	6	3⅞x5	36.0	P C	Ball	P	Rem	Ful	U	4	Eat	Sp	24.6	4	Js	184	5290	34x7.50 B	34x7.50 B
Stud. Ersk. Mod. 52-B	½	675	Con 9 F	6	2¾x4½	18.0	P C	Sch	Vac	Rem	W-G	U	3	Tim	Sp	15.6	4	Js	109	....	30x5.00	30x5.00
Velie 33	¾	1165	Own 56	6	3⅛x4½	24.5	Pw	Strom	Vac	Aut	War-G	U	3	Own ½	Sp	4.9	4	Tr	112	2352	30x5.25	30x5.25
Velie 40	1½	1595	Own 40	6	3⅛x4⅝	24.4	Pw	Strom	Vac	Remy	War	U	3	Col ½	Sp	6.5	4	Tr	148	4198	32x6.75 B	32x6.75 B
Victor 25	1½	1490	Cont	6	2⅞x4¾	19.8	Pb	Zen	Vac	Rem	Cov	U	3	Tim	Sp	18.1	4	D	131	3000	30x5	30x5
*Victor 41	2	2300	Cont	6	3⅜x4⅝	27.3	Pb	Zen	Vac	Rem	Cov	U	4	Tim	Sp	40.1	4	D	154	3400	32x6	34x7
*Victor 71	3-3½	4085	Her	4	4¼x5¾	28.9	Pb	Zen	Gra	Rem	Cov	U	4	Tim	Wo	—	R	R	162	5800	36x6	36x6 D
Victor 80	4-4½	4755	Her	6	4 x5¾	38.2	Pb	Zen	Vac	—	Cov	U & C	9	Wis	D R	—	R	R	160	7000	36x5 S	36x12 S
Victor 80	4-4½	4605	Her	4	4½x5¾	32.4	Pb	Zen	Vac	—	Cov	U & C	9	Wis	D R	—	R	R	160	7000	36x5 S	36x12 S
Whippet 96	½	365	Own 96 A	4	3⅛x4⅜	15.6	Pb	Til	Vac	Aut	Own	U	3	Own	Sp	15.84	4	R	103¼	1469	28x4.75	28x4.75
White 15 B	1	1545	Own G K A	4	3¾x5⅛	22.5	G S	Zen	Vac	L-N	Own	C	4	Own	Sp	18.6	R	R	133½	3242	30x5	30x5
White 57	1¼	2725	Own G R C	4	4 x5¾	25.6	Pw	Zen	Vac	L-N	Own	U	4	Own	Sp	19.3	R	R	146	3774	32x6	32x6
White 20-B	1½	2125	Own G K A	4	3¾x5⅛	22.5	G S	Zen	Vac	L-N	Own	C	4	Own	D R	32.1	R	R	145½	4412	34x5	34x5 D P
White 56	2	3125	Own G R C	4	4 x5¾	25.6	Pw	Zen	Vac	Mag	Own	U	4	Own	Sp	26.1	R	D	165	5157	36x4 S	36x7 S
White 51-A	2½	3750	Own G R B	4	4¼x5¾	28.9	Pb	Zen	Vac	Mag	Own	U	4	Own	Sp	35.5	R	D	170	6256	36x5 S	36x8 S
White 55	3½	4650	Own G R B	4	4¼x5¾	28.9	Pb	Zen	Vac	Mag	Own	U	4	Own	I G	50.4	D	R	174	8402	36x5 S	40x5 S D
White 52-T	3½	4700	Own G R B	4	4¼x5¾	28.9	Pb	Zen	Vac	Mag	Own	U	4	Own	I G	58.4	D	R	129½	8126	36x5 S	40x5 S D
White 52	5	5100	Own G R B	4	4¼x5¾	28.9	Pb	Zen	Vac	Mag	Own	U	5	Own	I G	91.9	D	R	174	9184	36x6 S	40x12 S
White 58	3	4400	Own G R B	4	4¼x5¾	28.9	Pw	Zen	Vac	Mag	Own	U	4	Own	I G	49.5	D	A	180	7400	36x5 S	36x5 S D
*†White 50B 25-29 Pas.	—	5350	Own G R B	4	4¼x5¾	28.9	Pb	Zen	Vac	Mag	Own	U	4	Own	D R	19.3	4	D	198	6494	34x7	34x7 D
*†White 53 18-21 Pass.	—	4250	Own G R B	4	4¼x5¾	28.9	Pb	Zen	Vac	Mag	Own	U	4	Own	Sp	18.1	4	D	180	6000	34x7.50B	34x7.50DB
*†White 54 25-29 Pass.	—	7500	Own 1 A 1	6	4⅜x5¾	45.9	Pw	Zen	Aut-P	L-N	Own	U	4	Own	Sp	23.0	4	D	227	7915	38x9.00B	38x9.00DB
Willys Knight T-100	1	1095	Own K G T	6	2⅛x3⅞	20.7	Pb	Til	Vac	Aut	Own	U	3	Tim 5260	Sp	26.03	4	R	130	2700	30x5	30x5
Willys-Knight 15	1½	1545	Own K G T	6	2⅛x3⅞	20.7	Pb	Til	Vac	Aut	Ful D U	U	3	Eat 1002	Sp	24.3	4	R	134	3300	30x5	32x6
Willys-Knight 16	1½	1595	Own K G T	6	2⅛x3⅞	20.7	Pb	Til	Vac	Aut	Ful D U	U	3	Eat 1002	Sp	24.3	4	R	151	3400	30x5	32x6
Willys-Knight 20	2	1945	Own K G T	6	3⅜x4¾	27.34	Pw	Til	Vac	Aut	Ful D U	U	3	Eat 1504	Sp	26.81	4	R	150	3800	32x6	34x7
Willys-Knight 21	2	1995	Own K G T	6	3⅜x4¾	27.34	Pw	Til	Vac	Aut	Ful D U	U	3	Eat 1504	Sp	26.81	4	R	164	3900	32x6	34x7
Willys-Knight 25	2½	2545	Own K G T	6	3⅜x4¾	27.34	Pw	Til	Vac	Aut	Ful G U	U	4	Wis 6617 B	D R	30.38	4	R	150	4920	32x6	32x6 D
Willys-Knight 26	2½	2595	Own K G T	6	3⅜x4¾	27.34	Pw	Til	Vac	Aut	Ful G U	U	4	Wis 6617 B	D R	30.38	4	R	164	5020	32x6	32x6 D

GENERAL NOTATIONS

****REFERENCE MARKS** apply to individual lines only and explanations are given under the subdivision for each company in the **"SPECIAL NOTATIONS."**

CAPACITIES given in this table are in tons or fractions of tons. Bus capacities are given in number of passengers.

TIRE EQUIPMENT where not otherwise indicated is solid.

WHEEL BASES given are standard, but optional wheel bases are available in many cases.

ENGINE—Bud, Buda; Con, Continental; Her, Hercules; Kgt, Knight; Lyc, Lycoming; Wak, Waukesha; Wis, Wisconsin.

LUBRICATION—Pb, pressure lubrication to main and connecting rod bearings; Pw, full pressure lubrication to all bearings, including wrist-pins; P&S, pressure with splash; CS, circulating splash.

CARBURETOR—Car, Carter; Hol, Holley; Joh, Johnson; Mar, Marvel; Sch, Wheeler-Schebler; Str, Stromberg; Stw, Detroit lubricator; Til, Tillotson; Zen, Zenith-Detroit.

FUEL FEED—Gra, Gravity; Pre, Pressure; Vac, Vacuum tank; P, Fuel pump Auto-P, Auto pulse; E, Electric pump.

IGNITION—AB, American-Bosch; Aut, Electric Auto-Lite; Apo, Apollo; Del, Dayton Engine Laboratory; Eis, Eisemann; L-N, Leece-Neville; N-E, North East; RB, Robert Bosch; Rem, Delco-Remy; Spf, Splitdorf.

TRANSMISSION—Br L, Brown-Lipe; Cov, Covert; Ful, Fuller; Mec, Mechanics Machine; Mun, Muncie; W-G Warner Gear.

LOCATION—C, Center, Amid; U, In unit with engine.

REAR AXLE—Cla, Clark Equipment; Col, Columbia; Eat, Eaton; Sal, Salisbury; Tim, Timken; Wis, Wisconsin.

FINAL DRIVE—St, Straight bevel; Sp, Spiral Bevel; Wo, Worm; DR, Double Reduction; Ch, Chain; IG, Internal Gear.

BRAKES—Js, Jackshaft; R, Rear wheels; D, Drive Shaft; 4, Four-wheel; Tr, Transmission.

TIRES—B, Balloon; D, Dual; S, Solid.

SPECIAL NOTES

AMERICAN-LA FRANCE

**On Model W—This model is also available with worm drive axle.

AUTOCAR

†Engines in these models are located under the driver's seat.

DURANT LINE

*Includes panel body.

G. M. C. LINE

†Pneumatic tire equipment also available.

*Model T30A is also available as Model T30B, priced $1,435, with 152-inch wheel base, and as Model T30C, priced $1,485 on 164-inch wheel base.

*Model T42A is also available as Model T42B, priced $1,720 on 152-inch wheel base, and as Model T42C, priced $1,735 on 164-inch wheel base, and also as Model T42D, priced $1,760 on 175-inch wheel base.

*Model T60A is also available as Model T60B, priced $2,635 on wheel base of 160 inches; also as Model T60C, priced $2,650 on 180-inch wheel base, and as Model T60D, priced $2,685 on 200-inch wheel base. Prices on these models are for solid tire equipment. Pneumatic tire equipment is also available in each case at $215 extra.

*Model T80A is also available as Model T80B, priced $2,815 on 160-inch wheel base; also as Model T80C, priced $2,830 on 180-inch wheel base, and as Model T80D, priced $2,865 on 200-inch wheel base. Prices on these models are for solid tire equipment, pneumatic tire equipment is available in each case at $395 extra.

*Model K102A is also available as K102B, at $5,320 on 184-inch wheel base.

FLEET-ARROW LINE

*Model F. A. 1 is also available as Model F. A. 2, at $2,500 on wheel base of 160 inches, weight 3,975 lbs., and as Model F. A. 3, at $2,550, with seven speed transmission, on 180-inch wheel base, weight 3,985 lbs.

HAHN LINE

*Model 24 also available as Model 26, priced $1,495, on 144-inch wheel base, with Buda H. S. engine, 6-cyl. 3⅝x4½ inches rated 27.3 h. p., weight 3,200 lbs.

*Model 34 also available as Model 36, with Buda H. S. 6 engine (described above), weight 3,850 lbs.

*Model 44 also available as Model 46, priced $2,410, on 156-inch wheel base, with Buda H. S. 6 engine, as in Model 26, weight 4,200 lbs.

†Model 56 also available on 171-inch wheel base.

INTERNATIONAL HARVESTER LINE

*Model HS-54 also available in the following wheel bases, 130-inch tractor, 170, 185 and 200-inch.

*Model HS-54-C also available in the following wheel bases, 130-inch tractor, 170, 185 and 200-inch.

†Frame is reinforced with inserted channels in each side rail, extending from dash to rear end.

*Model HS-74 also available in the following wheel bases, 144-inch tractor, 185, 210 and 235-inch.

*Models HS-74-C and HS-104-C also available in the following wheel bases, 146-inch tractor, 185, 210 and 235-inch.

All Model HS heavy-duty International truck models are equipped with built-in vibration dampered clutches.

LARRABEE

*Note—Bevel gear, worm or double reduction drive rear axle available in models 40 and 50. Bevel or double reduction axles available in 30. Worm or double reduction axles in 60 and 70. Three or more wheel bases in each model. All Larrabee models have hydraulic brakes; 40 up have vacuum booster.

MACK LINE

*Model AB, 1½ to 2 ton model, also available with double reduction rear axle; priced $3,450.

*Model AB, 2½ to 3 ton model, also available with double reduction rear axle; priced $3,850.

CT—City type bus.

P—Parlor type bus.

‡Gas electric drive.

**Equipped with electric brakes on rear wheels and hand brake on drive shaft.

PIERCE-ARROW LINE

*Model A1 also available as Model A2, at $2,650 on 160-inch wheel base, weight 4,205 lbs., and also as Model A3, at $2,700 on 180-inch wheel base, weight 4,255 lbs.

*Model XA1 also available as Model XA2, at $3,550 on 162-inch wheel base, weight 6,550 lbs., and also as Model XA3, at $3,600 on 180-inch wheel base, weight 6,600 lbs.

*Model XB1 is also available as Model XB2, at $3,750 on 162-inch wheel base, weight 6,800 lbs., and as Model XB3, at $3,800 on 180-inch wheel base, weight 6,850 lbs.

*Model HB1 is also available as Model HB2, at $4,550 on 180-inch wheel base, weight 8,200 lbs., and also as Model HB3, at $4,600 on 198-inch wheel base, weight 8,300 lbs.

*Model WC1 is also available as Model WC2, at $5,150 on 180-inch wheel base, weight 8,550 lbs., and also as Model WC3, at $5,250 on 198-inch wheel base, weight 8,590 lbs.

*Model RD1 is also available as Model RD2, at $5,400 on 180-inch wheel base, weight 5,450 lbs., and also as Model RD4, at $5,550 on 204-inch wheel base, weight 9,300 lbs., and also as Model RD4, at $5,500 on 204-inch wheel base, weight 9,400 lbs.

*Model RF1 is also available as Model RF2, at $5,650 on 204-inch wheel base, weight 10,020 lbs.

†Seven-speed transmission also available.

REPUBLIC LINE

*Model 75-4, also available as Model 75-6, priced $1,495, on 128-inch wheel base, with Lycoming 4SL engine, 6-cyl. 3¼ by 4½ inches, rated 25.3 h. p., weight 3,150 lbs.

*Model 76-4, also available as Model 76-6, priced $1,675, on 150-inch wheel base, with Lycoming 4SL engine, as in Model 75-6, weight 3,500 lbs.

†Model 60-61, also available with four-wheel brakes, $3,155.

**Model 62, same as 60-61, on 171-inch wheel base, $3,040.

**Model 66, same as 65, on 200-inch wheel base, $3,750.

**Model 25W, 25WB and 25WBR also available in 2½-ton capacities as Models S25W, S25WB and S25WRB on wheel bases of 165, 156 and 124 inches, priced $3,695.

**Models 35 and 35R also available in 5-ton capacities on wheel bases of 170 and 157 inches, priced $5,145.

**Model 85 also available on Model 86 on 170-inch wheel base, price $2,150.

**Model 50-51 also available as Model 52 on 170-inch wheel base.

REO LINE

*Tonner in wheel base, 123, 138; 1½ in wheel base, 133, 143, 148; 2 in wheel base, 148, 164; 3 in wheel base, 159, 175, 139.

STEWART LINE

*Buddy ¾-ton can be equipped with 4 wheel brakes.

*Buddy 1-ton can be supplied in 138-inch wheel base.

*Models 16 and 16X can be supplied in 145-inch wheel base.

*Models 24 and 24X can be supplied in 132 and 160-inch wheel base.

*Models 25, 25W, 25X and 25XW can be supplied with dual 32x6 tires, also 160-inch wheel base.

*Model 18X can be supplied in 148 and 190-inch wheel base.

*Models 19X and 22X can be supplied in 148, 172, 190 and 220-inch wheel base.

WHITE LINE

*Bus Models are equipped with Booster Brakes.

†Supplied in optional wheel bases, with solid tires if desired.

FORD LINE

*Rear axle ratios of 5.1 to 1 and 7.25 to 1 are also available.

VICTOR LINE

*Also available with Hercules 4-cyl. 4x5-inch engine, rated at 25.6 h. p.

†Also available with Continental engine 3¾x4½ inches, rated at 33.7 h. p., or Continental 6-cyl. engine 3¾x5, rated at 33.7 h. p.

S. A. E. Hears Discussion On Export and Research

(Continued from Page 5)

denced by the higher acceleration with benzol, may account for the remainder.

"Studying acceleration against spark advance for each of several speeds, it is apparent that the effect of spark advance on acceleration is that which would be expected from the effect of spark advance on brake torque.

LOW GEAR ACCELERATION TESTS

"After removing the steel inertia disc from the dynamometer, the total remaining inertia is only 10 per cent. higher than that of the car when in low gear. Tests made under these conditions should therefore closely approximate the actual performance in low gear.

"For convenience, and since the inertia load was slightly higher than that of the car, no electrical load was imposed on the engine during the acceleration tests. In only one run of this series was the usual electrical load applied during the idling period.

"These tests were all made with intake manifold 47 degree centigrade, jacket water about 70 degrees centigrade and carburetor air 24 degrees centigrade. Comparing the run made after an idling period with the usual load imposed on the engine with a run made under identical conditions, except that no load was used during the idling period, the latter showed nearly twice the acceleration at the start, but after about one second fell below the former, remaining below up to 1,000 r. p. m. Above this speed no appreciable difference was shown between the two runs.

"In general, it was found that the runs made with rich mixtures give better acceleration at the start, but fall short of the leaner runs above 700 r. p. m. Thus, the run with No. 64 orifice gave an acceleration of nearly 320 r. p. m. per second at the start, but fell to only 70 r. p. m. per second at 650 r. p. m., while that made with No. 49 orifice, falling to zero acceleration at 370 r. p. m., rose to 340 r. p. m. per second at 700 r. p. m.

"To illustrate the degree of reproducibility in check runs under these conditions, two runs at the leanest setting were made. While some difference was evident, very little difference was shown after the first two seconds. Runs with richer mixtures probably would check more closely, as missing was frequent in the first two seconds of these runs."

ENGINE FRICTION MEASURED BY SPARK ACCELEROMETER

"If, in the course of an acceleration or a constant speed test, the ignition or the fuel supply is shut off, the energy stored in the rotating mass is dissipated through engine and dynamometer friction and windage, and also, of course, in any electrical load which may be imposed on the apparatus. Tests have shown that windage is negligible and that the dynamometer friction is very small and reasonably constant. Likewise the electrical load for any given setting of the dynamometer controls can be ascertained readily.

"Knowing the total inertia, it is possible to determine from the acceleration, negative in this case, the retarding force. From this latter the known small factors mentioned above may be separated, leaving the engine friction. When no electrical load is imposed, the engine friction comprises 90 per cent. of the retarding force, hence the resulting values for engine friction are little affected by errors in the dynamometer friction. Except near the ends of the speed range, the values are believed to be correct to within 0.5 lb.-ft. torque.

"By comparing figures 18 and 19, effect of reducing the jacket water temperature from 79 degrees centigrade to 10 degrees centigrade is seen. The dynamometer friction value is roughly doubled, while the accelerometer shows an increase of only 20 to 40 per cent., if the very high value obtained just at the start of the 'deceleration' is neglected Expressed otherwise, the friction as obtained by the accelerometer is about three-fifths of the value given by motoring with the dynamometer.

"From a series of tests at varied manifold and jacket temperatures, the following conclusions were drawn:

"1. Engine friction obtained by motoring does not necessarily represent the operating friction, the disparity increasing with increasing oil viscosity.

"2. Accelerometer friction values more nearly represent those under operating conditions, differing from the dynamometer values in the right direction and by approximately the right amount.

"3. At the same speed and jacket water, oil, and manifold temperatures, the full throttle engine friction varies with operating conditions affecting the cylinder wall temperature. At high jacket temperatures, however, this variation is slight."

Automotive Stock Statistics

(Revised weekly from records of New York Stock Exchange)

PASSENGER CARS

Common stock	Shares authorized	Shares issued	Par Value	Dividend	% yield at current prices	1927 earnings per share
Chandler	1,000,000	280,000	None	None	....	.....
Chrysler	6,000,000	4,407,296	None	*3.00	*2.5	‡5.51
Gardner	300,000	250,000	$5	None	....	.....
General Motors	$750,000,000	$435,000,000	$25	*5.00	*2.5	‡13.42
Hudson	2,000,000	1,596,000	None	5.00	5.8	‡8.79
Hupp	2,000,000	1,080,861	$10	*2	*2.5	.....
Jordan	200,000	126,000	None	None	....	.....
Moon	400,000	400,000	None	None	....	.....
Nash	2,730,000	2,730,000	None	*4.00	*3.9	‡1.96
Packard	5,000,000	3,004,264	$10	*3.00	2.0	‡‡7.28
Peerless	400,000	269,589	$50	None	....	.....
Pierce-Arrow, A	197,250	197,250	None	None	....	.....
Reo	.....	.....	$10	*80	2.6	‡2.28
Willys-Overland	3,000,000	2,524,602	$5	1.20	4.4	‡8,557,399

RUBBER COMPANIES

Ajax	1,000,000	880,330	None	None	....	.....
Fisk	1,250,000	840,684	None	None	....	**4,839,854
Goodrich	1,000,000	745,910	None	4.00	4.0	.....
Goodyear	1,450,000	829,597	None	None	....	‡7.00
Kelly	1,200,000	363,840	None	None	....	‡357,741.10
Lee	300,000	300,000	None	None	....	.....
Miller	400,000	260,201	None	None	....	.....
U. S. Rubber	2,000,000	810,000	$100	None	....	.....

TRUCKS AND TRACTORS

Advance Rumely	137,500	137,000	$100	None	....	.....
Allis Chalmers	500,000	260,000	$100	7.00	3.7	‡7.26
Brockway	.....	.....	None	*3.00	*4.3	‡3.73
Federal	500,000	487,359	None	*.80	*3.9	‡.45
Intern. Harvester	1,300,000	1,059,492	$100	2.50	2.6	.....
Mack	1,000,000	781,528	None	6.00	5.7	‡6.05
White	1,000,000	80,000	$50	1.00	2.3	‡1.45
Yellow A	1,700,000	800,000	$10	None	....	.....

ACCESSORIES, EQUIPMENT, ETC.

American Bosch	250,000	207,399	None	None	....	**3.44
Briggs	2,025,000	2,003,225	None	None	....	.....
Continental Motors	3,000,000	1,760,845	None	.80	5.3	‡.46
Eaton	.....	270,000	None	3.00	4.5	.....
Electric Auto-Lite	890,000	890,000	None	4.00	2.9	**8.00
Elec. Stor. Battery	.....	806,000	None	5.00	5.8	‡5.17
Gabriel, A	198,000	198,000	None	None	....	‡1.60
Glidden	500,000	500,000	None	None	....	.....
Kelsey-Hayes	.....	398,000	None	2.00	4.1	‡1.02
Marlin Rockwell	400,000	362,145	None	*2.00	*2.7	‡3.87
Martin Parry	200,000	125,000	None	None	....	.....
Moto Meter A	.....	200,000	None	None	....	‡2.80
Motor Wheel	1,000,000	687,500	None	*2.00	4.6	‡2.40
Motor Products	200,000	130,406	None	2.00	1.2	‡8.37
Mullins	.....	100,000	None	None	....	‡742,590
Murray	.....	.....	None	None	....	‡2.53
Omnibus Corp	1,500,000	625,293	None	None	....	.....
Pines Winterf'nt A	50,000	50,000	5.00	$3	2.0	.....
Spicer	.....	313,000	None	None	....	2.94
Stewart-Warner	.....	599,990	None	6.00	4.3	‡9.13
Stromberg Carb	150,000	80,000	None	3.00	5.5	‡4.74
Timken Roll. Bear	1,250,000	1,200,882	None	6.00	3.8	.....

*Also extras. †Six months 1928. ‡Nine months 1928. **Estimated for 1928. ¶Total net for nine months. ‡‡Year ended Aug. 31.

Rubber Prices

New York, Jan. 15.—The sharp upward movement in rubber was given a sudden setback yesterday when London speculators launched a selling movement. The foreign traders started selling when the market had reached 11¼d. during the morning, an advance of almost 1d. from the previous close, and the result was a precipitate decline to 10½d.

The belief among the better informed dealers here that there was nothing substantial behind the spectacular climb of values on Friday and Saturday proved correct when it was announced that one of the less important "guarantee brokers" in London was short 2,500 tons in his January commitments, forcing many of his clients to cover as best they could.

The December report from the Rubber Association was construed as bearish, although it was not believed to have been instrumental in the decline, either here or abroad. The report, carried in full in another column, revealed a startling falling off in consumption, record imports and increased stocks both on land and afloat. Tire inventories at the end of November were also swelled substantially.

RUBBER EXCHANGE OF NEW YORK

	High	Low	Close	Prev. close
January	20.90	20.00	20.00a20.10	21.00
February	20.90	19.60	*20.10	21.00
March	21.30	20.10	20.20	21.10
April	21.10	21.00	*20.30	21.30
May	21.80	20.50	20.50	21.50
June	.....	.....	*20.70	21.70
July	21.90	20.90	20.90	21.90
August	21.10	21.10	*21.10	22.00
September	22.10	21.00	21.20	22.10
October	22.20	21.40	21.30a21.50	22.20
November	.....	.....	*21.50	22.30
December	22.50	21.50	21.50a21.60	22.30

Spot price, *20.30. Sales, 3,086 lots.

*Nominal.

OUTSIDE CLOSING PRICES

(Per pound, delivered, New York.)

Plantation—	Bid	Asked
Ribbed, smoked sheets, spot	20	20¼
January	20	20¼
February-March	20⅜	20⅜
April-June	20¼	20½
July-September	20½	20¾
Spot—		
First latex crepe	20¾	21
Clean thin brown crepe	18¾	19
*Specky brown crepe	18½	19
Rolled brown crepe	15¾	16
No. 2 amber	19	19¼
No. 3 amber	18¾	19
No. 4 amber	18½	18¾
Paras—		
*Up-river, fine, spot	21	21¼
do coarse	15	15¼
*Acera, fine, spot	22¼	22½
*Caucho ball—Upper	14	14¼
Brazil, washed, dried, fine	25½	25¾
Centrals—		
*Esmeraldas	12	12½
*Central scrap	12	12½
Guayule, washed and dried	..	17½
Balata—		
*Block Ciudad	50	..
*Surinam sheet	50	..
*Manaos block	50	..
Peruvian block	27	28

SCRAP RUBBER

(Dealers' buying prices, f. o. b., New York)

Boots and shoes, black, ton	$19.00 a20.00
Arctics, cwt.	.50 a .60
Inner tubes, mixed, cwt.	3.75 a 3.80
Inner tubes, red, cwt.	4.50 a 4.75
Tires, standard, mixed, ton	17.00 a18.00
Inner tubes, No. 1, cwt.	6.00 a 6.25
Inner tubes, No. 2, cwt.	3.62½a 3.75
Mixed hose, soft, cwt.	.50 a .55
Hose, air brake, ton	27.50 a30.00

*Nominal.

BORG-WARNER CORP. OFFERS RIGHTS TO BUY LONG CO.

Chicago, Jan. 15.—Borg-Warner Corporation stockholders of record January 24 will have the right to purchase one additional share at $100 for every ten shares held. The rights expire February 11. Proceeds will be used in the purchase of the Long Manufacturing Company of Detroit, manufacturer of automobile clutches and radiators, which has been acquired by Borg-Warner.

ALLIS-CHALMERS TO OFFER NEW STOCK ISSUE AT 140

New York, Jan. 15.—The Allis-Chalmers Manufacturing Company directors voted to offer stockholders of record January 25 the right to subscribe to one share of stock at $140 a share for each ten shares held. Rights expire February 20.

Allis - Chalmers Manufacturing Company declared the regular quarterly dividend of $1.75, payable February 15 to stock of record January 25.

UNIVERSAL CREDIT OPENS HOUSTON, TEX., BRANCH

Houston, Jan. 15 (U. T. P. S.).—A branch of the Universal Credit Company, whose purpose is to afford a credit purchase plan for the Ford Motor Company, has opened offices in Houston. The Houston branch of the Universal Credit Company is located in the Post-Dispatch Building.

80,000 SHARES OF BULLARD STOCK PLACED ON MARKET

Boston, Mass., Jan. 15.—A block of 80,000 shares of the Bullard Company, no par value common stock, is being offered by a small group of bankers, consisting of White, Weld & Co. and McEldowney & Co., Inc. The Bullard Company was formerly the Bullard Machine Tool Company of Bridgeport, Conn.

Detroit, Jan. 15.—Detroit industrial employment was 272,755 in the week ended January 8, an increase of 10,154 over the preceding week and comparing with 214,301 at this time a year ago, according to the Employers' Association.

Consumption of Rubber Gains 19%

(Continued from Page 1)

month, but an increase of 20,825 tons, or 43.4 per cent., above stocks afloat at the end of 1927.

A summary of the statistics contained above follows:—

	December, 1928	December, 1927
Consumption	31,232	25,381
Imports	46,840	29,062
Stocks on hand Dec. 31	66,166	100,134
Stocks afloat Dec. 31	68,764	47,939
	Entire year 1928	Entire year 1927
Consumption	441,398	379,879
Imports	446,321	432,316

Imports in detail compare as follows:

	December, 1928	December, 1927
Plantations	45,486	26,057
Paras	1,304	2,157
Africans	41	330
Centrals	9	116
Guayule	....	400
Manicoba and Matto Grosso	....	....
Totals	46,840	29,062
	Entire year 1928	Entire year 1927
Plantations	429,191	405,543
Paras	12,050	17,576
Africans	1,258	2,073
Centrals	557	3,235
Guayule	3,364	3,856
Manicoba and Matto Grosso	1	26
Totals	446,421	432,316

There were imported into the United States in December, last, from various sources, 988 tons of waste, 71 tons of Balata, and 240 tons of miscellaneous gums.

Louisville, Jan. 15.—Unfilled orders of Mengel Company for the week ended January 7, 1929, were $2,700,000, comparing with $2,076,000 on January 7, 1928, an increase of 30 per cent.

RANGE OF AUTOMOTIVE STOCKS

NEW YORK STOCK EXCHANGE

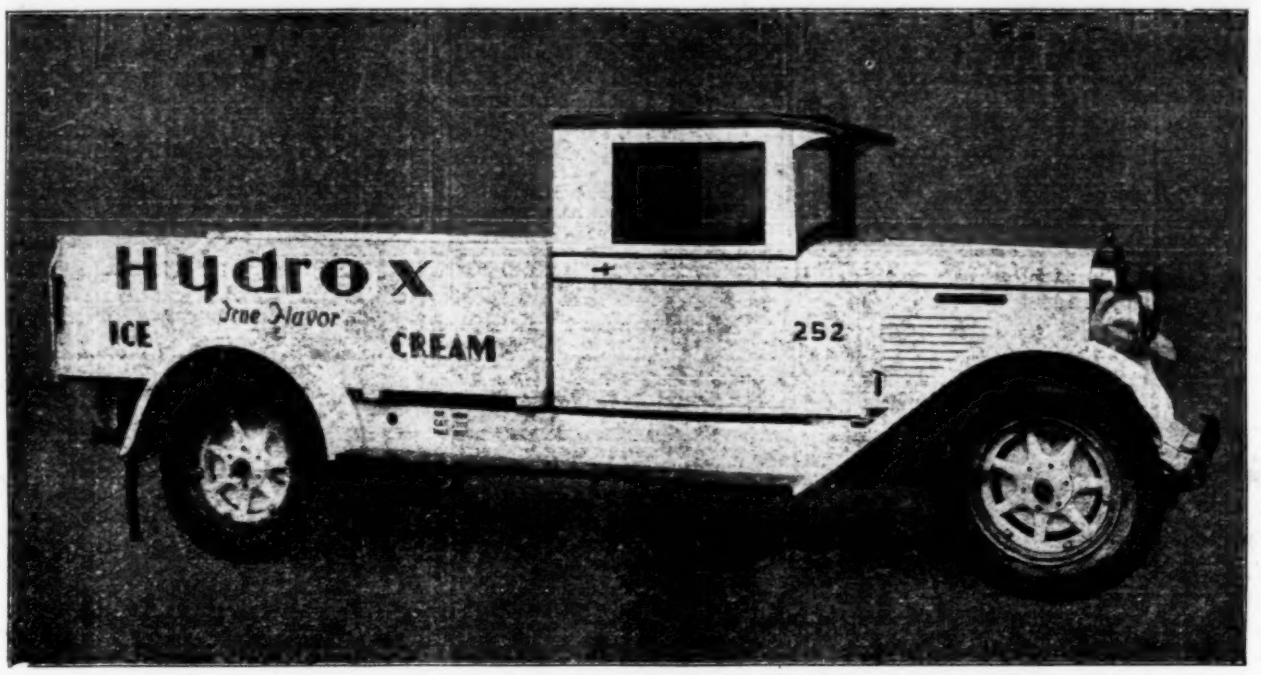
Previous, 1928 High	Previous, 1928 Low	Div.		Sales	High	Low	Close	Net Change
56	48½	....	Advance Rumely	1,300	50⅛	48⅛	50⅛	+ 1
64¾	60⅛	....	Advance Rumely pf	600	60	60	60	— ⅛
10⅛	9⅛	....	Ajax Rubber	34,500	10⅞	7⅞	10⅜	+ ⅜
45⅛	41⅝	....	Am Bosch Magneto	6,500	44⅞	42⅞	43¾	+ 1⅝
8⅜	7⅝	....	Am.-La France	1,500	8	8	8	— ⅛
63⅛	54½	....	Briggs Mfg. Co.	2,400	58½	57	58½	+ 1⅛
73⅞	68¼	3	Brockway Motor	1,200	69⅞	68½	69	— ⅛
23½	20⅜	....	Chand.-Clev. Motor	1,700	23	22⅛	23	+ 1
39⅜	36⅛	....	Chand.-Clev. Mot. pf	1,600	40	39½	39½	— ⅛
35⅝	34⅛	....	Chic. Pneu. Tool	600	34⅛	34⅛	34½	— ⅜
135	120¾	3	Chrysler Corp.	64,000	123⅝	120⅞	122	— ¼
22⅛	19⅛	.80	Continental Motors	17,900	24⅝	21⅛	24⅝	+ 3¼
69	61	3	Eaton Axle & Spring	6,300	68⅜	67	67⅝	— ⅛
142⅝	134⅛	5.50	Electric Auto-Lite	5,900	138	135½	137	— 2
88⅝	85½	5	Electric Stor. Bat.	800	86⅞	86⅛	86½	+ ⅛
20⅞	19	.80	Federal Motors	1,000	19½	19	19½	+ ⅛
16⅛	15⅜	....	Fisk Rubber	61,400	18⅜	15⅜	18¼	+ 2⅜
70¼	68	....	Fisk Rubber 1st pf	800	72⅛	67	67	— 3¼
28¼	24	....	Gabriel Snubber	2,500	27⅝	26½	26½	— ⅝
17⅛	15	....	Gardner Motor	1,400	16⅜	15⅛	15⅝	— ⅛
209½	194⅛	7.50	General Motors	4,600	201½	197½	199	+ 1
126½	124¾	7	General Motors pf 7%	200	124⅞	124⅝	124¾	— ⅛
41	36⅞	1.63	Glidden Co.	3,300	40⅝	40	40½	+ ⅛
105⅞	96	4	Goodrich	13,200	102⅞	99⅝	101⅝	+ 2⅝
114¼	113	7	Goodrich pf	200	114	114	114	— ¼
140¼	122½	....	Goodyear T. & R.	13,100	137⅞	132	135¼	+ 1⅝
103⅞	163	7	Goodyear T. & R. pf	100	103½	103½	103½	+ ⅛
54	49⅜	....	Graham-Paige Motor	7,500	50⅛	49½	49⅝	— ⅜
93	84	5	Hudson Motor Car	9,200	87½	85	86⅝	+ ⅝
81⅜	76⅝	3	Hupp Motor Car	60,600	81¼	79	80⅝	+ 1⅛
32½	27	....	Indian Motorcycle	200	29	28⅞	28⅞	+ ⅜
14¼	11	....	Intercon. Rubber	5,900	14⅛	17⅞	13½	— ¼
101⅞	94	2.50	International Harvester	3,100	95¼	93⅜	94	— ¼
143⅜	142½	7	Internat'l Harvester pf	100	143½	143½	143½	+ ⅛
199⅝	180½	3	Johns-Manville	5,700	194¼	190	191½	— ⅛
16⅛	13⅜	....	Jordan Motor Car	2,900	13⅝	12½	13⅝	+ ⅛
23⅜	21½	....	Kelly-Springfield	3,500	23⅝	22	23⅜	+ 1⅜
98⅝	98½	....	Kelly-Springfield 6s pf	100	100	100	100	+ ⅛
93⅞	92½	....	Kelly-Spring'd 8s pf	300	93	78⅞	93	+ ⅛
52⅝	48	2	Kelsey-Hayes Wheel	1,300	49⅝	48¼	48½	— ¼
24	21⅝	....	Lee Rubber & Tire	14,000	25	23	24⅝	+ 1⅜
112	104½	6	Mack Trucks	3,800	106⅞	104⅛	105	— 1⅜
89	69½	4	Marmon	1,500	77⅞	74	76¼	+ 2⅛
78⅛	74½	3.75	Marlin Rockwell	100	75	75	75	— ⅛
34⅞	24⅜	....	Mengel	6,300	32½	31⅝	32½	+ ⅛
24⅞	22½	....	Miller Rubber	6,900	28⅜	25	27⅝	+ 3⅛
8	6⅝	....	Moon Motors	2,900	7⅞	7½	7⅝	— ⅛
25⅝	23	....	Moto Meter A	700	23⅞	23½	23½	— ⅜
185	166⅝	2	Motor Products	100	170	170	170	+ 3¼
46	42⅝	2	Motor Wheel Corp.	700	44⅞	43⅜	43⅝	— ¼
81⅞	76⅞	....	Mullins Mfg.	100	77	77	77	+ ¼
76⅝	68½	....	Murray Corp.	2,900	70⅝	69⅜	69⅝	— ⅝
110	102¼	6	Nash Motors	17,800	104⅞	103⅛	104⅝	+ 1⅜
8½	6	....	Norwalk T. & R.	2,000	6⅛	5⅜	6	+ ⅛
9⅝	8½	....	Omnibus Corp.	1,500	9½	9	9⅜	....
153	139⅛	3	Packard Motor Car	42,000	145½	140½	143⅜	+ ⅛
22½	19⅝	....	Peerless Motor Car	800	21½	20⅝	21⅜	+ 1⅛
37⅜	28⅝	....	Pierce-Arrow A	7,900	35⅝	33⅛	35	+ ⅝
86½	72½	....	Pierce-Arrow pf	700	82	82	82	+ 2
31⅝	29	1	Reo Motors	2,200	29⅝	28⅝	29⅛	....
11½	10⅝	....	Reynolds Spring	1,800	11¼	10⅝	11	....
51½	45	....	Spicer Mfg. Co.	3,800	50⅜	48	49⅝	+ 1⅜
142	121½	6	Stewart-Warner Speed	13,900	142	138½	138½	— 1⅜
88⅝	77	5	Studebaker Co.	98,400	89⅜	87⅛	98⅝	+ 2
78	76⅜	6	Timken Roller Bear	5,300	81	77⅞	80⅞	+ 2⅛
43½	42	2.50	Trico	1,500	42½	42	42	....
52½	42	....	U. S. Rubber	103,400	55¼	51⅝	54¼	+ 2⅜
90	81	....	U. S. Rubber 1st pf	11,400	91¼	88⅛	90⅝	+ 2⅜
49⅜	46⅝	2	Westinghouse A. B.	1,700	48⅜	47⅛	48⅝	+ 1⅛
44⅜	40⅝	1	White Motors	26,600	46⅛	44	46⅝	+ 2⅛
35	31½	1.20	Willys-Overland	13,000	32⅜	32⅛	32⅝	— ⅜

NEW YORK CURB MARKET

Sales		High	Low	Close	Net Ch'ge
200	Auburn Aut.	138¾	138	138	— ⅛
200	Bendix Corp.	120	117	117	—9
100	Bohn Alum.	116	116	116	+3
2800	Budd Mach.	42½	40	42½	+ 4¼
200	Bullard M.T.	140	140	140	....
100	C. G. Spring	11½	11½	11½	....
100	Caterp'r T.	77	77	77	— ⅜
1800	Checkercab	47¾	47¼	47¾	+ ¼
13000	Cities Serv.	91¼	90⅜	90⅞	+ ⅜
400	Cit. Serv. pf	98⅝	98⅛	98⅝	+ ⅛
800	Doehler D. C.	38	37	37	—1⅛
3100	Durant Mot.	17	16½	16¾	+ ⅜
500	Ev. Au. Ld. A	59	58⅛	59	+ ⅜
2100	Fageol Mot.	6⅝	6	6⅝	+ ⅛
61500	Fiat	16¾	16½	16¾	+ ⅜
325	Firestone	249	247¼	248¾	+ ¾
100	Firestone pf.	110½	110½	110½	+ ¼
270	Ford Can.	734	719	730	....
3800	Hall Lamp.	26½	25⅝	26¼	+ ¾
400	Perfect Cir.	60½	59	60½	+ 1¾
100	Pitt. Pl. Gl.	65⅞	65⅞	65⅞	+ ⅜
300	Raybestos	73	72½	72⅞	+ ⅜
5400	Serv-el Inc.	15½	15⅛	15¼	....
200	Sparks With.	173	170¼	170¼	—4¾
300	Stutz Mot.	27⅝	27⅝	27⅝	+ 2⅝
3600	Tim. Det. Ax	34	32⅛	33⅜	— ⅛
400	Watson, J.W.	12⅛	12⅛	12⅛	— ⅛
2800	West Auto.	59⅛	56	59⅜	+ 4⅜
1300	Wire Wheel.	30¼	29⅝	30¼	+ ⅛

BROCKWAY-INDIANA

Identify yourself with this powerful new combination of resources, reputation and experience *extending over twenty years of successful truck building*



Above is a one-ton chassis, six cylinders, four-wheel brakes. A complete line—fours and sixes. 1 to 7½ tons capacity. Prices $1195 to $5500. Handsome specialized bodies are a feature of the new Brockways and Indianas.

There is an opportunity now for progressive dealers to establish themselves with the powerful new consolidated Brockway Motor Truck Corporation, which, by merging with the Indiana Truck Corporation, has become *one of the three largest manufacturers of motor trucks exclusively*—an organization that is the most outstanding example of specialized motor-truck construction in the country. An organization of *assured continuance in business.* An organization marketing trucks in 63 countries and having more than 350 points of sales and service in the United States alone.

Twenty years of constant improvement have developed the superlative new Brockway and Indiana Sixes. The Brockway or Indiana Truck you sell today is the supreme achievement of twenty years' effort toward making a better and better product. A real *truck* through and through. Not a single unit in these powerful trucks is adapted from passenger-car practice.

When trucks succeed for twenty years in such a highly competitive field as motor-truck manufacture, you can be assured that behind the reputation of those trucks are up-to-the-minute design, extraordinary value, and tried-and-proved performance. The new Brockway and Indiana Trucks are designed for the truck buyer looking for the kind of truck performance that he can depend on to serve more business—and to do it at less cost.

There are still some valuable Brockway and Indiana franchises open to responsible dealers in various parts of the country. There are so many profitable advantages in being associated with the powerful new Brockway-Indiana combination that every dealer should investigate this unusual line. Let us hear from you at once.

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